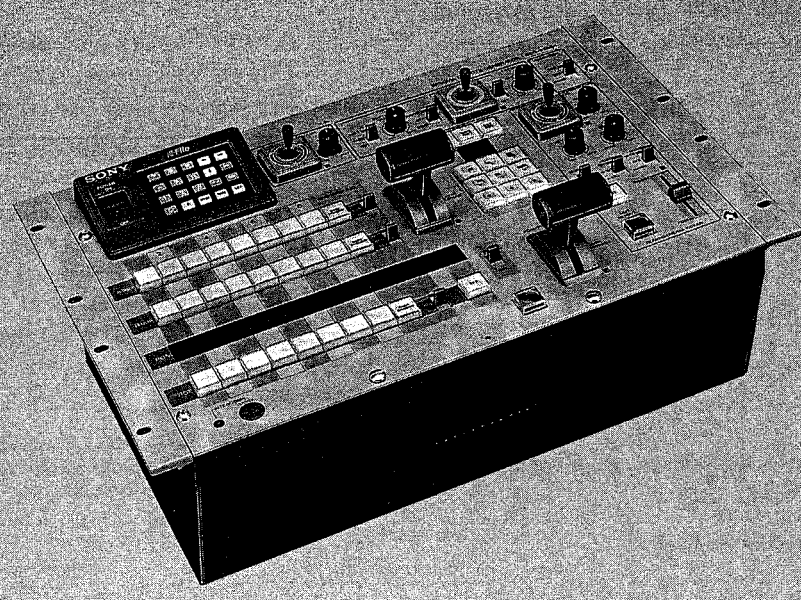
SPECIAL-EFFECTS GENERATOR

SEG-2550A
SEG-2550AP
SEG-2550APM
BK-2551/BK-2552

VOL. 2
GENERAL DESCRIPTION
SERVICE INFORMATION
ALIGNMENT



SONY®
SERVICE MANUAL

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

LEAKAGE CURRENT MEASUREMENT WARNING (ONLY FOR USA MODEL)

Before returning the set to the customer, confirm the leakage current is less than 0.1mA;

1. **Between all exposed metal parts and any exposed metal parts having a return to chassis, and**
2. **Between exposed metal and earth ground.**

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

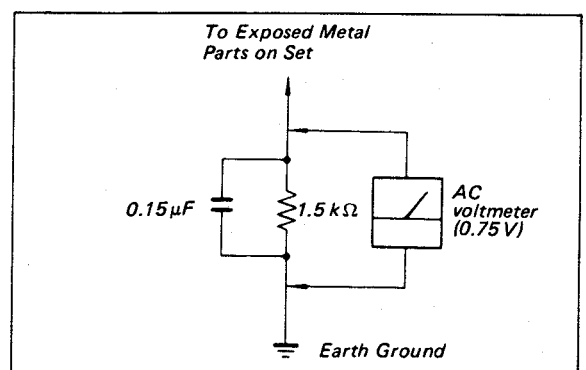


Fig. A. Using an AC voltmeter to check AC leakage.

SPECIFICATIONS

Signal system
- SEG-2550: EIA standards, NTSC color system
- SEG-2550P: CCIR standards, PAL color system

Switching system: Vertical blanking switcher

Effects
- MIX: Mixing by PGM/PST MIX lever and the EFF lever
- WIPE: 137 wipe patterns (selectable)
  Wipe edge : The softness is continuously variable.
  Border : Hue, chroma, luminance and width are continuously variable.
  Pairing : Scanning lines 2 lines/4 lines/8 lines (selectable)
  Echo: Possible
- EXT WIPE: WEX-2000/2000P wipe pattern extender is usable.
  EXT WIPE IN connector : 6-pin DIN
- EXT KEY: Output signal (6-pin DIN only) : HD, VD, 4 V p-p, 75 ohms, unbalanced
  Input signal (BNC and 6-pin DIN) : 0.7 V p-p (video) or 1 V p-p (VS), 75 ohms, unbalanced
  EXT KEY connector : BNC type and 6-pin DIN, with 75-ohm termination switch
  Slicer circuit is included (Clip level is variable).
- DOWNSTREAM KEYER
  Output signal (6-pin DIN only) : HD, VD, 4 V p-p, 75 ohms, unbalanced
  Input signal (BNC and 6-pin DIN) : 0.7 V p-p (video) or 1 V p-p (VS), 75 ohms, unbalanced
  DSK KEY connector : BNC type and 6-pin DIN, with 75-ohm termination switch
  Shadow : Wide and narrow (selectable)
  Edge: Variable
  Color matte : Continuously variable,
  Chroma : Approx. 0 – 700 mV p-p (variable according to the hue level)
  Hue : 0° – 360°
  Luminance (Y) : Approx. 50 – 700 mV
  Slicer circuit is included. (The clip level is variable.)
- BACKGROUND COLOR
  Chroma : Approx. 0 – 700 mV p-p (variable according to the hue level)
  Hue : 0° – 360°
  Luminance (Y) : Approx. 50 – 700 mV
  Continuously variable

Input signals
- VIDEO IN 1 — 8: BNC type × 8
  0.7 V p-p (VB) or 1 V p-p (VBS), 75 ohms, unbalanced, with 75-ohm termination switches (The INDICATION selector does not function with the VB input signal.)
- GEN LOCK IN: BNC type × 1
  0.3 V/0.3 V (BS) or 1 V p-p (VBS), with 75-ohm termination switch
- DSK INSERT IN: BNC type × I
  1 V p-p (VS)
- EXT WIPE IN: 6-pin DIN × 1

Output signals
- VIDEO OUT 1 — 8: BNC type × 8
  1 V p-p (VBS), 75 ohms, unbalaced (loop-through output of the corresponding VIDEO IN connector)
- PGM OUT 1 - 3: BNC type × 3
  1 V p-p (VBS), 75 ohms, unbalanced
- PST OUT 1, 2: BNC type × 2
  1 V p-p (VBS), 75 ohms, unbalanced
- GEN LOCK OUT: BNC type × 1
  (loop-through output of GEN LOCK IN connector)
- DSP OUT: BNC type × 1
  1 V p-p (VS), 75 ohms, unbalanced
- BLACK BURST OUT 1 - 4: BNC type × 4
  0.3 V/0.3 V p-p (BS), 75 ohms, unbalanced

Tally/intercom: TALLY/INTERCOM 1 — 4: 4-pin DIN × 4
TALLY/INTERCOM 5 — 8: CCJ connector (10 pin) × 1
Maximum pick-up value in a relay: 24 V 200 mA DC

Trigger: TRIGGER : Special minijack × 1
TAKE function by earth
(OPEN : +5 V, impedance 65 kohms)

RS-232C: 9600 baud (fixed), DTE (terminal),
Signal level : ±9 V
Protocol for SEG-2550/2550P

GPI: 15 pin
TAKE, DSK CUT IN/OUT function by earth
(OPEN: +5 V)

Performance
- DG: Less than 1%
- DP: Less than 1° (APL 10 – 90%)
- Crosstalk (SEG-2550A : 3.58 MHz, SEG-2550AP : 4.43 MHz): Over –50 dB
- Frequency response: 8 MHz ±0.5 dB
- Signal to noise ratio: Over –60 dB

Power requirements
- SEG-2550A: 120 V AC ±10%, 60 Hz±10%,
- SEG-2550AP: 220 – 240 V AC ±10%, 50/60 Hz ±10%

Power consumption
SEG-2550A: 82 W
SEG-2550AP: 92 W

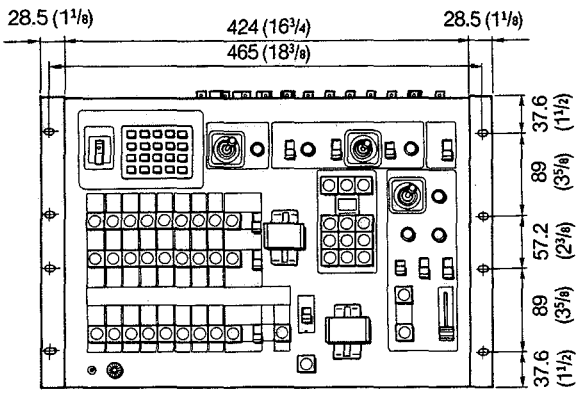
Operating temperature
0C° to 40C° (32°F to 104°F)

Dimensions: Approx. 481 × 155.5 × 310.4 mm (w/h/d) (19 × 6⅛ × 12¼ inches)

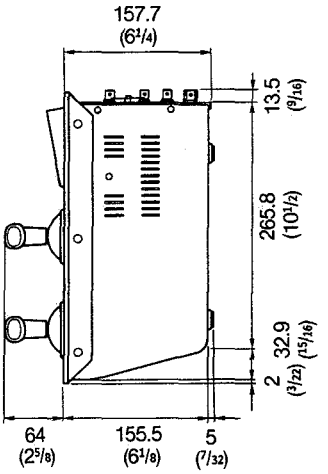
Weight: Approx. 14.5 kg (31 lb 15 oz)

Supplied accessories
- AC power cord 1
- Wipe pattern list 1
- CCJ connector for tally/intercom 1
- Label 2
- Connector cover for the GPI connector 1
- Seal ..... 1 set

Dimension diagram



Unit : mm (inches)



Design and specifications subject to change without notice.

RECOMMENDED EQUIPMENT AND ACCESSORIES

Color video camera DXC-1820/1820P, DXC-M3A/M3AP,
DXC-3000/3000P
Camera control unit CCU-1800/1800P, CCU-M3/M3P
Black and white camera AVC-D5/D5CE
Color video monitor PVM-1370/1370P, PVM series
Universal chroma keyer CRK-2000
Cables CCDD cables, CCF cables, UGC cables
RS-232C cable SMK-0031 (for SMC-70G/70GP)
RCC-30V (for BVE-900)
Microcomputer SMC-70G/70GP
NTSC superimposer SMI-7074
PAL superimposer SMI-7074P
Q-Manager
Wipe pattern extender WEX-2000/2000P
Editing control unit BVE-900
Protocol manual for the SEG-2550

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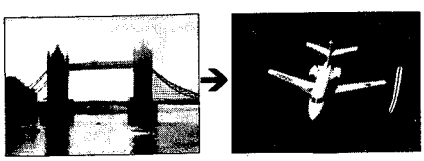
SECTION 1
GENERAL DESCRIPTION

1-1. INTRODUCTION

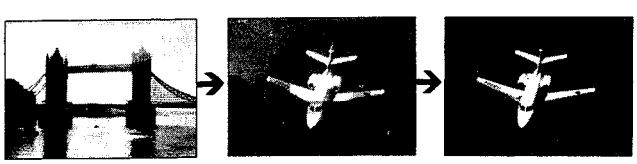
The Sony SEG-2550A/2550AP special effects generator can apply a wide variety of special effects, such as mixing, wiping, keying and downstream keying, to the video program from a camera, VTR, etc., and output the resulting program.
In addition to the basic functions, the SEG-2550A/2550AP can memorize the setting and operation of effects and reproduce them. This is called the "E-File" function. The operation using this E-File and the function of the downstream keyer can be controlled by the equipment connected to the GPI connector. The SEG-2550A/2550AP can also be remotely controlled by a microcomputer or a VTR editing control unit through the RS-232C interface.
The built-in sync generator allows all equipment connected to the SEG-2550A/2550AP to be synchronized with the SEG-2550A/2550AP. The SEG-2550A/2550AP can synchronize with an external sync signal when it is supplied.

1-1-1. SPECIAL EFFECTS FUNCTION

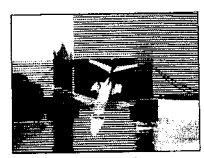
Cut
Instantaneous change from one picture to another during vertical blanking period is possible.



Mixing
Gradual transition by dissolving one picture into another is possible.

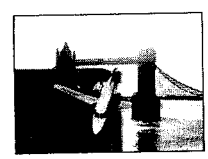


Wipe
Wipe function, a transition from one picture to another using a geometrical pattern moving across the screen, is provided. Wipe pattern can be selected from 137 patterns, and a variety of wipe effects such as pairing, echo, border and softness, are available.

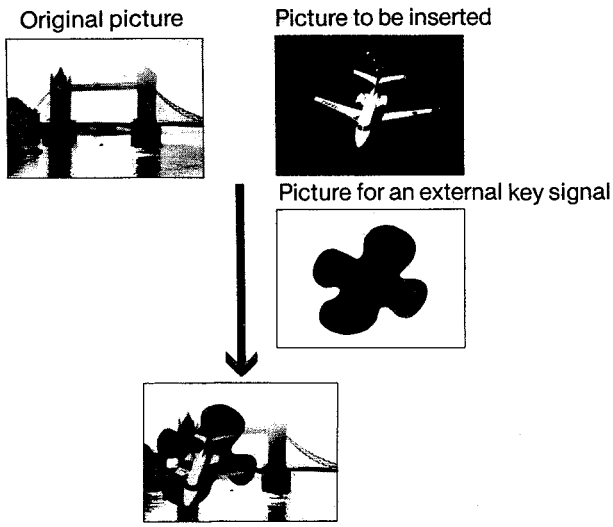

Pairing wipe

Echo wipe

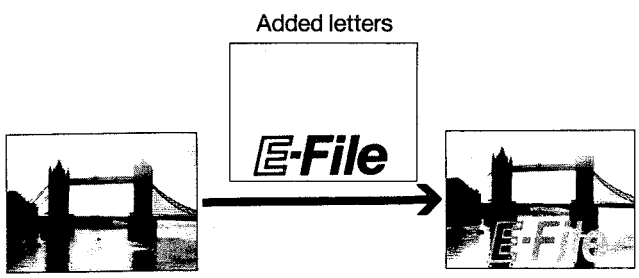
Border


Softness

External key
A part of one picture is cut out, and that area can be filled with another picture. The part to be cut out is determined by the picture (an external key signal) picked up by a black and white camera for the external key operation.



Downstream keyer
Captions or figures can be added on a picture. This is called downstream keyer. Added letters and figures can be colored, or shadow is added to them for easier viewing.



Background color
A built-in background color generator permits color background for keying, for the border of the wipe pattern, etc. Hue, chroma and luminance of the background color are continuously adjustable so that a precise color can be obtained.

1-1-2. "E-File" FUNCTION

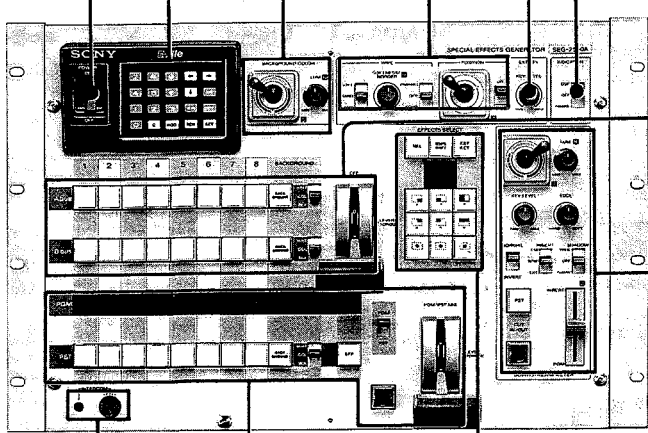
Memory of the setting on the SEG-2550A/2550AP
The setting on the control panel or the operating procedure of the SEG-2550A/2550AP can be held in the memory of the SEG-2550A/2550AP.
The data is held for about 24 hours after turning the power off.

Recall the data memorized in E-File and execution
The data memorized in the E-File can be recalled any time, and can be executed to reproduce the same effect.

Remote control
The SEG-2550A/2550AP is equipped with an RS-232C interface so that the effects can be executed in synchronization with the VTR editing control unit with this interface.

1-2. OUTLINE OF THE SEG-2550A/2550AP FUNCTIONS

For details, please refer to the pages indicated by the circled numbers.



[1] **POWER switch** 1-48
The power of the SEG-2550A/2550AP is turned on and off.

[2] **E-File section** 1-48
The setting and operating procedure of the SEG-2550A/2550AP is memorized, and the same condition is reproduced.

[3] **BACKGROUND COLOR section** 1-49
Hue, chroma and luminance of the background color are adjusted.

[4] **Wipe effects section** 1-50
The various wipe effects such as pairing, echo, border, softness and positioner, are controlled.

[5] **EXT KEY LEVEL control** 1-50
Adjusts the key signal level for the external key operation.

[6] **INDICATION switch** 1-51
Selects what is to be displayed on the preset monitor.

[7] **A bus/B bus select section** 1-51
Selects pictures used for effects such as mixing, wipe, external key, and executes the effects.

[8] **DOWNSTREAM KEYER section** 1-52
Letters or figures picked up by a black and white video camera or produced by the SMC-70G/70GP microcomputer are added on a picture. The added letters and figures can be colored.

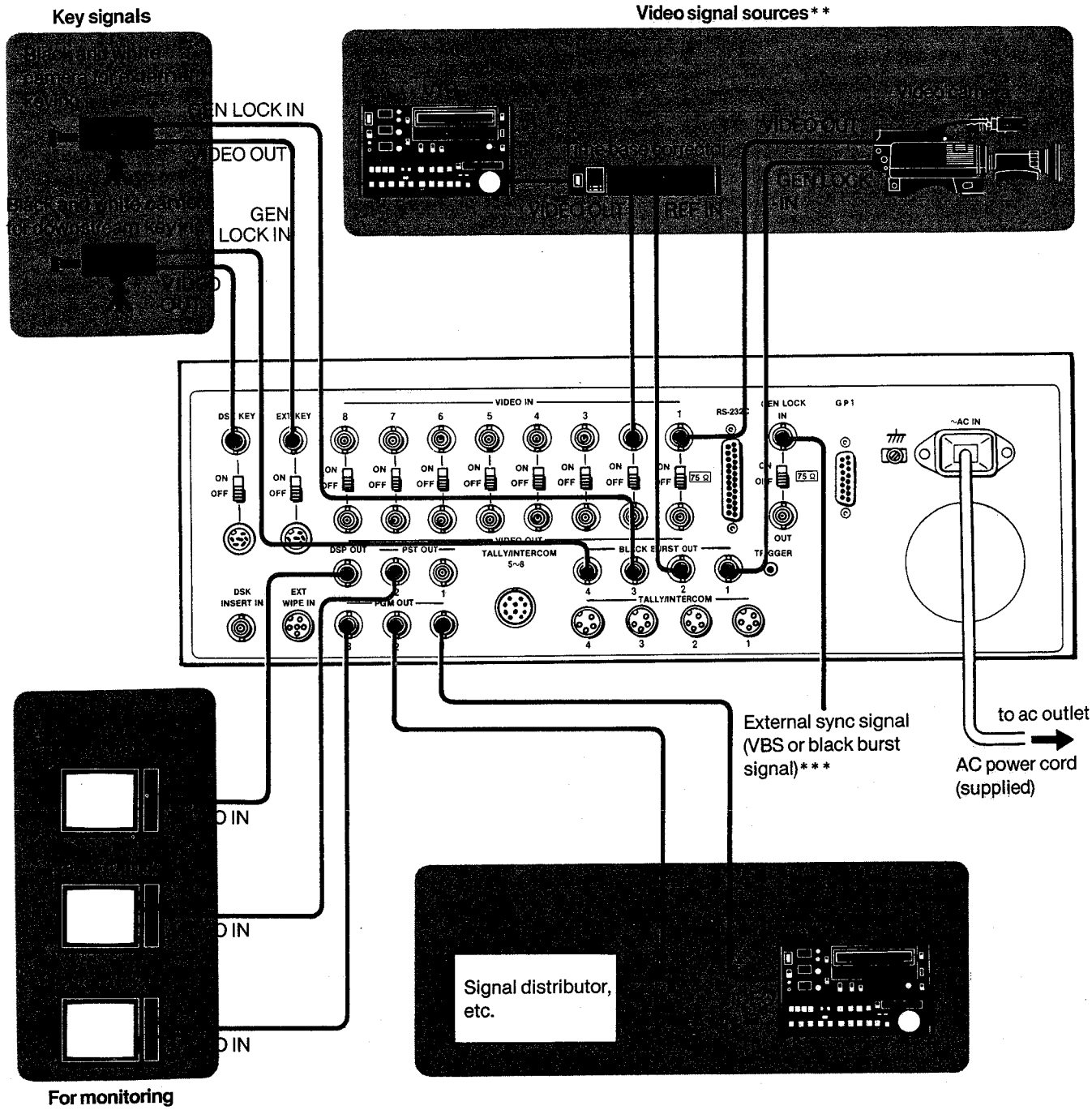
[9] **EFFECTS SELECT section** 1-54
Selects the effects to be executed when EFFECTS is selected with the PGM/PST select block.

[10] **PGM/PST select section** 1-55
Selects the program and preset pictures, and interchanges them by cut.

[11] **INTERCOM section** 1-56
Connect a headset for the intercom system and adjust the volume.

1-3. PREPARATION

1-3-1. BASIC CONNECTIONS



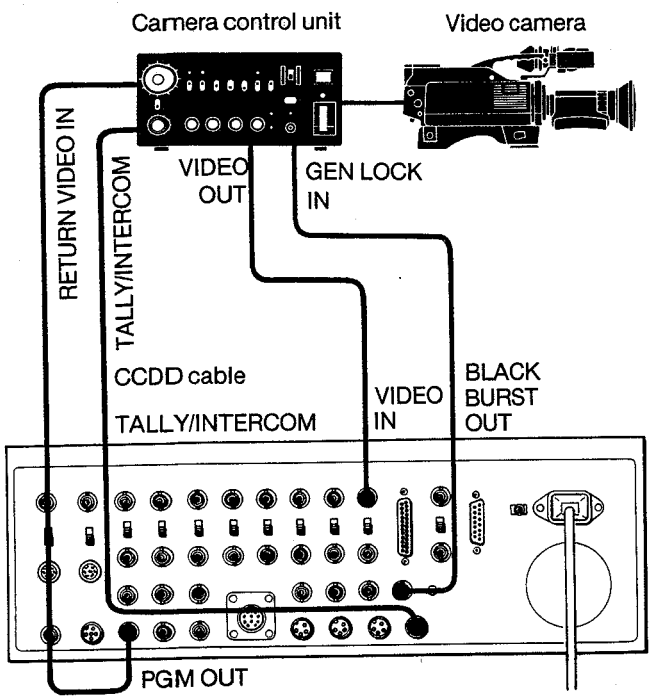
- For connections, the 75-ohm coaxial cables, 3C-2V, 5C-2V or equivalent should be used.

* For downstream keying, an SMC-70G/70GP microcomputer can be used. For the connection of the SMC-70G/70GP, refer to "TO CONNECT AN SMC-70G/70GP AS A DOWNSTREAM KEYER".

** Up to 8 video signal sources can be connected to any of the VIDEO IN 1 to 8 connectors.

*** To operate the SEG-2550A/2550AP with an external sync system, connect the external sync signal. When an external sync signal is connected, the phase of the output signal of the SEG-2550A/2550AP should be adjusted to the phase of the external sync signal. Before operating the unit, adjust the phase referring "ADJUSTING THE SC AND H PHASES".

1-3-2. TO CONNECT A CAMERA USING A CAMERA CONTROL UNIT



MONITORS TO BE USED

Display, program and preset monitors show the following pictures.

Display monitor
The data of the E-File and the information for E-File operation are displayed. (For details on E-File, refer to "OPERATION USING "E-File"".)

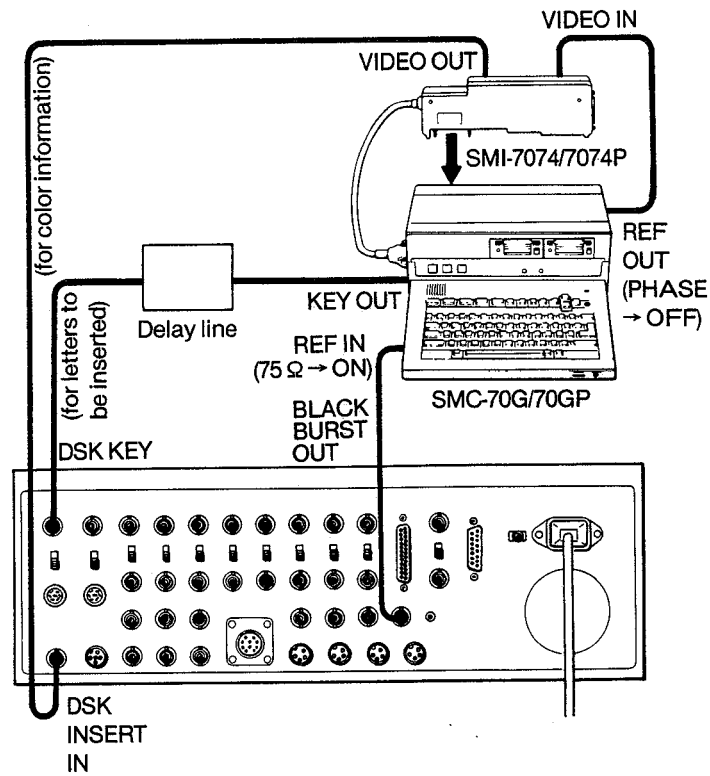
Program monitor
A final picture to be recorded or sent to the next stage (program picture) is displayed.

Preset monitor
The next program picture is displayed. This monitor is used to check the picture or to rehearse the effects.

Note on connection cables
For connections other than tally/intercom, the 75-ohm coaxial cables, 3C-2V, 5C-2V or equivalent should be used.

1-3-3. TO CONNECT AN SMC-70G/70GP FOR DOWNSTREAM KEYER

When an SMC-70G/70GP microcomputer is connected, letters for downstream keyer can be inserted by the SMC-70G/70GP. The SMI-7074 NTSC superimposer or the SMI-7074P PAL superimposer is necessary for the SMC-70G/70GP. The key signal should be delayed by about. 0.5 μsecond using a delay line (available locally).

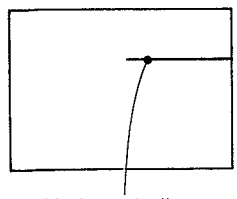


1-3-4. ADJUSTMENTS OF CONNECTED EQUIPMENT

Adjust the phases, video level, hue, chroma level, etc., of the connected cameras and VTRs.

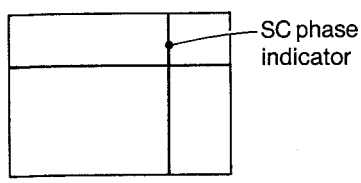
1 Adjust the phases of all equipment as follows.

1) Turn the power of all equipment on.
2) Turn the SEG-2550A/2550AP on.
3) Set the PGM/PST selector to PGM.
4) Set the INDICATION selector to PHASE.
   The phase indication lines will appear on the preset monitor screen.

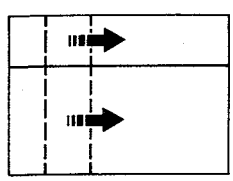


H phase indicator

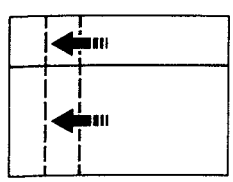
5) Press the 1 button of the PST select buttons.
6) Turn the H phase control on the equipment connected to the VIDEO IN 1 connector so that the left and right H phase indicators appear.



7) Turn the SC phase control on the same equipment so that the SC phase indicator moves to the left; when it reaches the leftmost position, the indicator is split into two lines, the right one moving to the right.



8) Turn the SC phase control so that the right line moves to the left to become one line with the left line.



The adjustment of the phases of the equipment connected to the VIDEO IN 1 connector is finished.

- For the equipment connected to the VIDEO IN 2 through 8 connectors, repeat steps 5), 6), 7) and 8).
- Be sure to adjust the H phase first, then the SC phase.

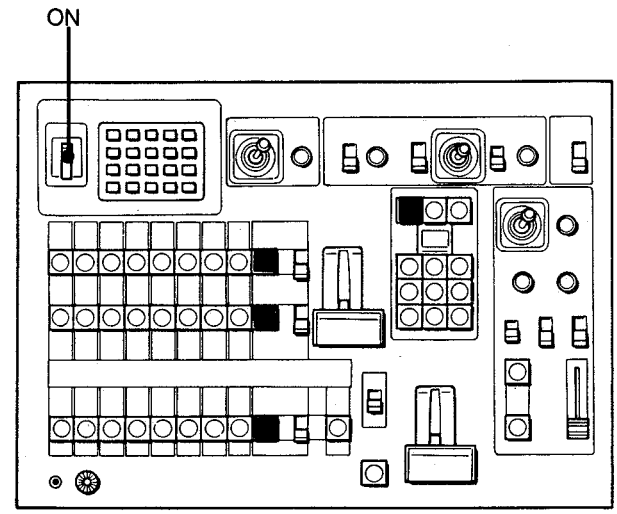
2 Adjust the color of the video monitors.
Use the color bars generated by the video camera or the camera control unit to adjust the hue so that the same color will be obtained on all video monitors.

3 Adjust the level—video output level, pedestal level, chroma level, hue, etc.—of all equipment so that the same level is obtained.

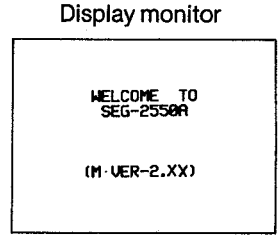
1-4. START

This section introduces the basic operation such as changing a picture by cut, mixing or wipe and inserting a picture into another picture (keying), etc.

Check that the power and equipment to be used are correctly connected, and set the POWER switch to ON. The power is turned on, and the buttons on the operation panel are lit as shown below.

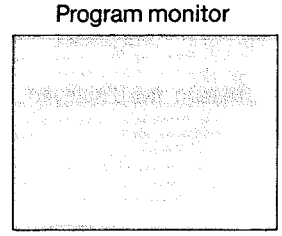


Display monitor



(This display is for the SEG-2550A, NTSC model.)

Program monitor



Preset monitor

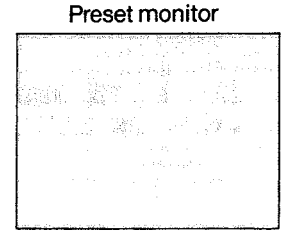


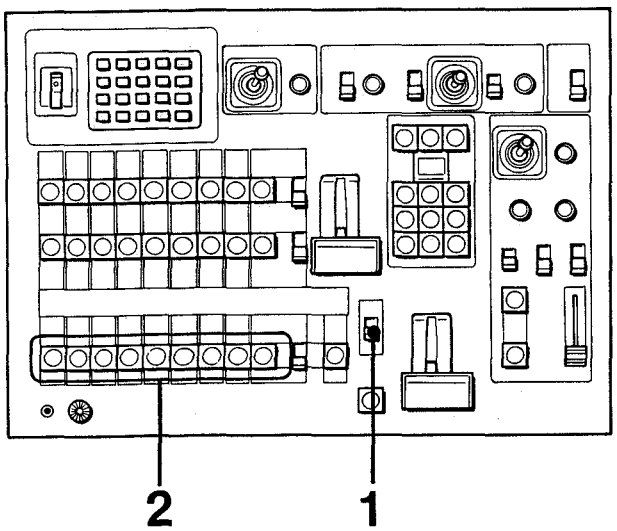
Figure 1 Screens when the power is turned on

1-5. CUT

Cut is the method to instantaneously change a picture to the next one. Cut can be executed by pressing a PST bus select button or the TAKE button.

1-5-1. CUT WITH THE PST BUS SELECT BUTTONS

The picture selected by a PST bus select button is displayed on the program and preset monitors, and changed to the next picture simultaneously.



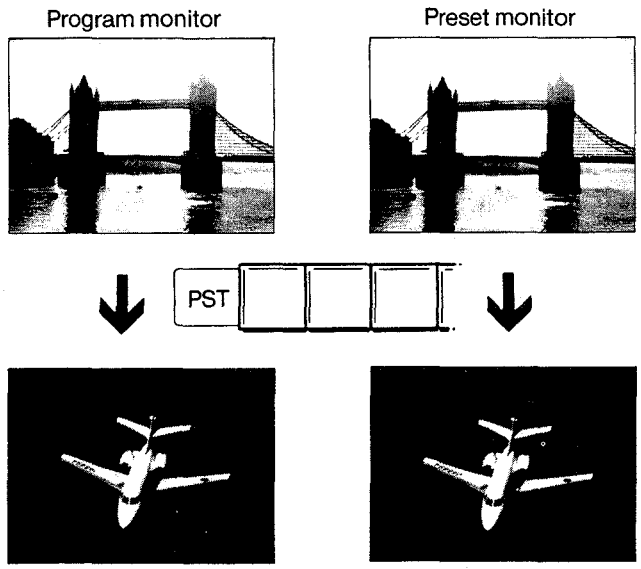


Figure 2 **Cut with the PST bus select buttons**

1 Set the PGM/PST selector to PGM.

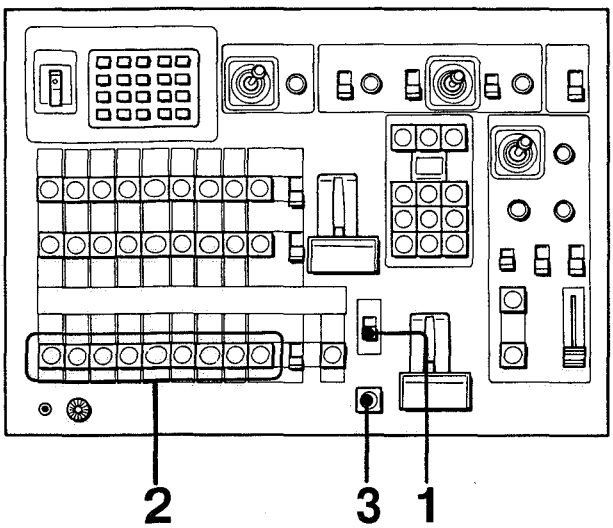
2 Select a desired picture by pressing a PST bus select button.

The pressed button lights, and the figure of the PGM indicators corresponding to the button also lights. The selected picture appears on the program and preset monitors.

Every time a PST bus select button is pressed, the displayed picture changes.

1-5-2. CUT WITH THE TAKE BUTTON

The picture on the preset monitor will be the next program picture. The picture can be checked on the preset monitor.



1 Set the PGM/PST selector to PST.

2 Select a desired picture by pressing a PST bus select button.
The pressed button lights, and the selected picture appears on the preset monitor.

3 Press the TAKE button.
The pictures on the preset monitor and program monitor are interchanged, and the indication of the PGM indicator and the PST bus select button are also changed.

Repeat steps 2 and 3 to continue the cut operation.

- The PGM/PST MIX lever should be set at either end, or the pictures on the preset monitor and program monitor are mixed.

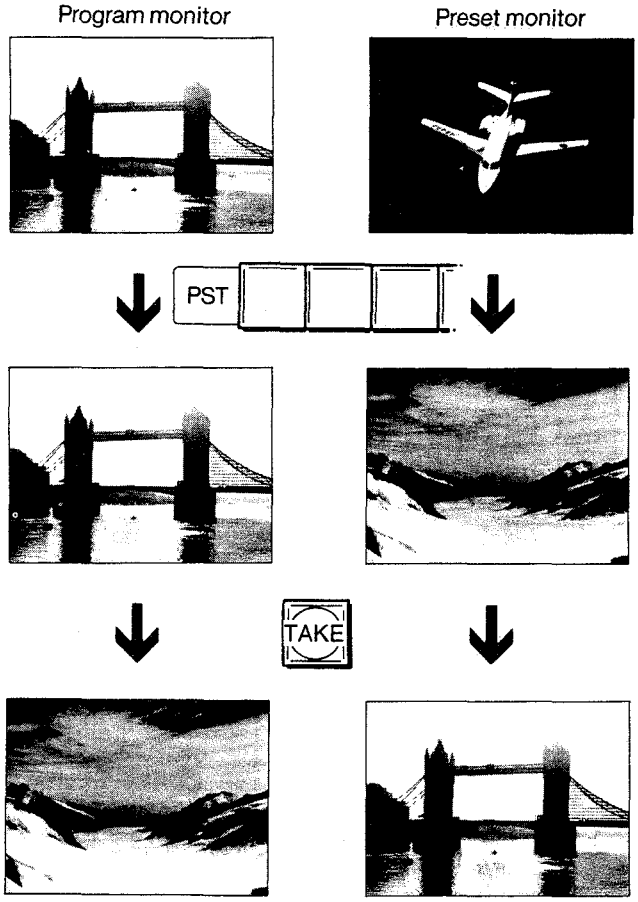


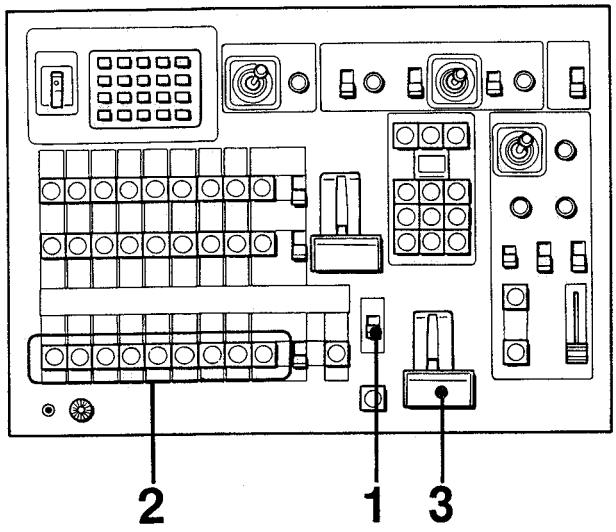
Figure 3 **Cut with the TAKE button**

1-6. MIXING

Mixing is the effect of slow transition that one picture dissolves into another. Mixing is executed by the PGM/PST MIX lever or by the EFF lever.

1-6-1. MIXING WITH THE PGM/PST MIX LEVER

The program picture is gradually changed to the preset picture.



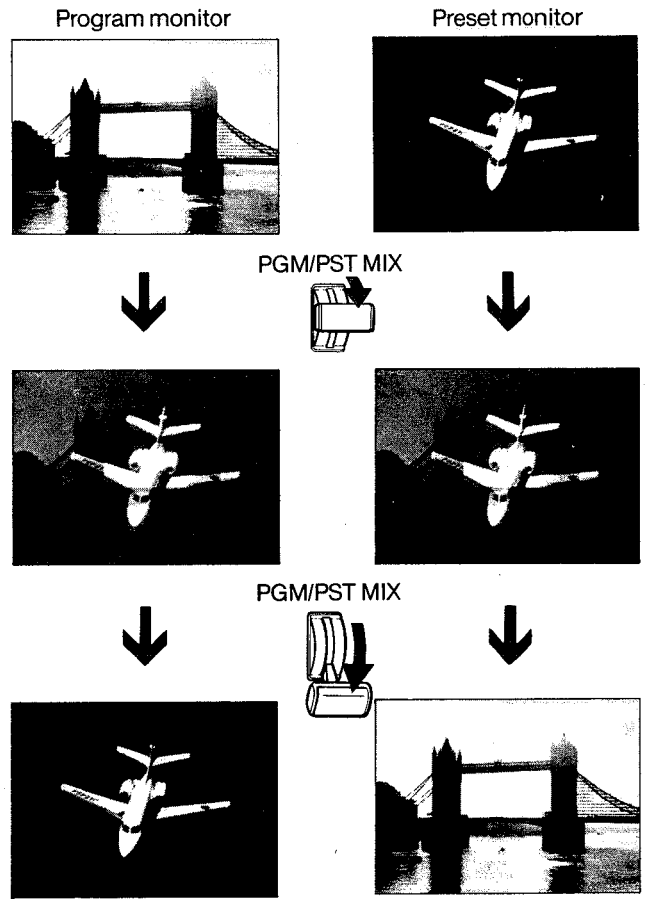


Figure 4 **Mixing with the PGM/PST MIX lever**

1 Set the PGM/PST selector to PST.

2 Select a desired picture by pressing a PST bus select button.
The pressed button lights, and the selected picture appears on the preset monitor.

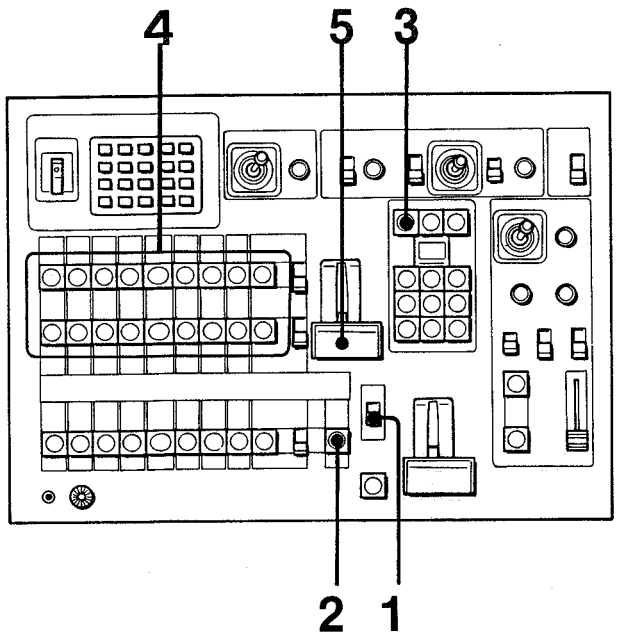
3 Move PGM/PST MIX lever to the other end.
The pictures on the program monitor and preset monitor are mixed and gradually interchanged.

Repeat steps 2 and 3 to continue the mixing operation.

- The uppermost and the lowermost positions of the PGM/PST MIX lever are not assigned to either the program or preset picture. The pictures will be interchanged each time the lever is moved from one position to the other.
- The speed of the interchange depends on how fast the lever is moved.
- When the BACKGROUND button of the PST bus select buttons is pressed, select the color by the BACKGROUND COLOR stick and LUM control. For details, refer to "HOW TO SELECT THE BACKGROUND COLOR".

1-6-2. MIXING WITH THE EFF LEVER

The pictures selected by the A bus select buttons and B bus select buttons are gradually interchaged.
Rehearsal can be done on a preset monitor. For details on the rehearsal, refer to "REHEARSAL".



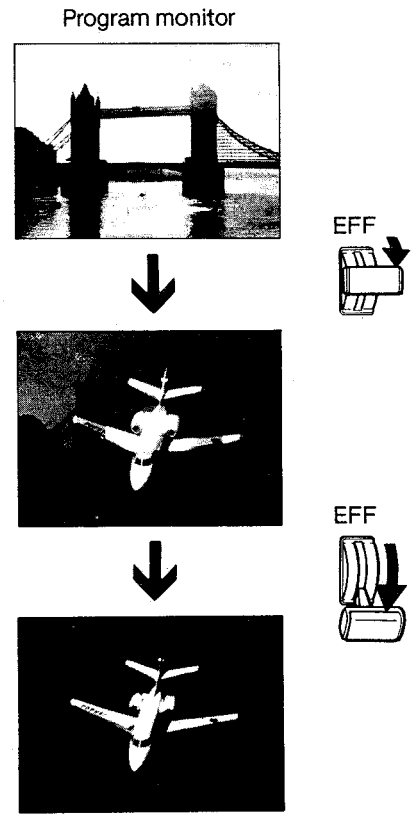


Figure 5 **Mixing with the EFF lever**

1 Set the PGM/PST selector to PGM.

2 Press the EFF button of the PST bus select buttons.
The EFF button and EFFECTS indicator light.

3 Press the MIX button.
The MIX button lights.

4 Select pictures by pressing an A bus select button and a B bus select button.

5 Move the EFF lever to the other end.
The next picture will appear being dissolved into the program picture.

- The button which corresponds to the program picture blinks.
- The speed of the interchange depends on how fast the lever is moved.

REHEARSAL

Before recording or sending the final picture, rehearsal can be done on the preset monitor. Then you can check the effect in advance. To rehearse the effects, proceed as follows.

1 Set the PGM/PST selector to PST.

2 Perform the procedure of the desired effect for rehearsal.
You can check the result of the effect on the preset monitor.

3 After the effect is confirmed, press the TAKE button or move the PGM/PST MIX lever to the other end so that the picture on the preset monitor will become the program picture.

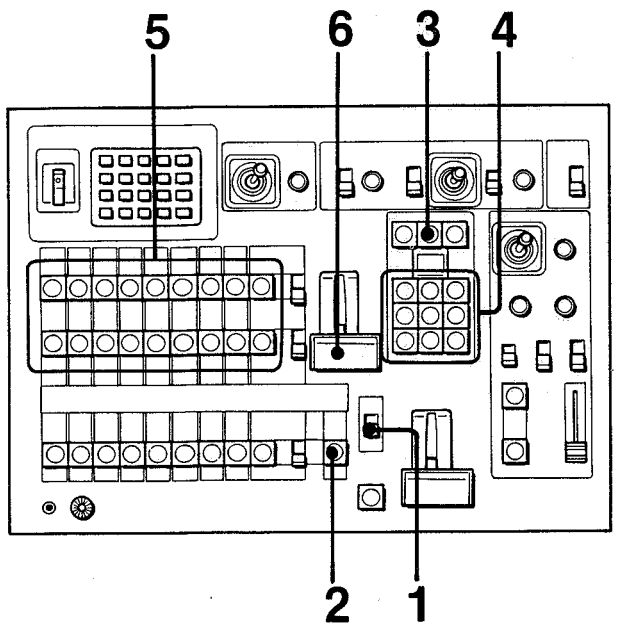
4 Perform the desired effect again (moving the EFF lever, pressing the EXT KEY button, etc.), and the final picture will be supplied from the PGM OUT connector.

1-7. WIPE

A wipe is changing one picture to another by revealing the new picture with a geometrical pattern (wipe pattern) moving across the screen. You can select a wipe pattern from 137 patterns. Nine patterns among them can be selected by simply pressing a pattern select button, and the remaining 128 patterns are selected with the pattern codes.

1-7-1. OPERATION USING THE PATTERN SELECT BUTTONS

To select a wipe pattern by simply pressing a wipe pattern select button, proceed as follows.



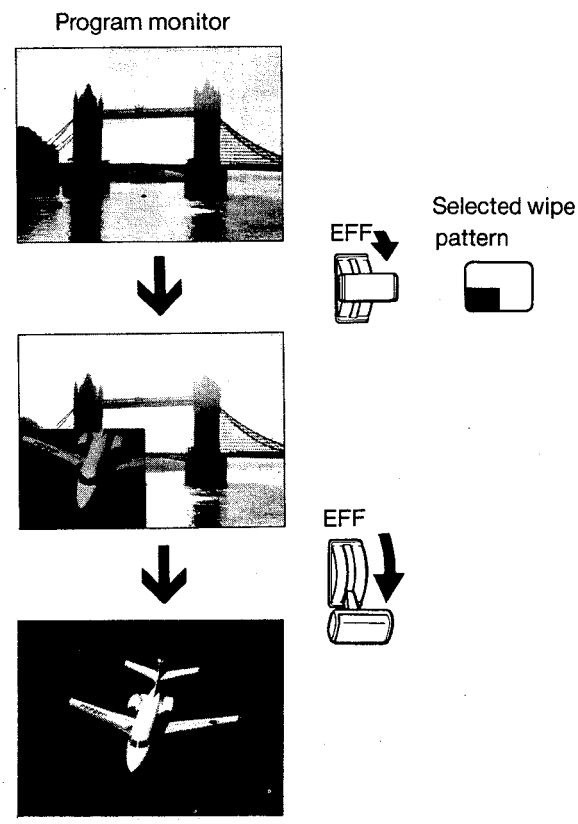


Figure 6 Wipe

1 Set the PGM/PST selector to PGM.

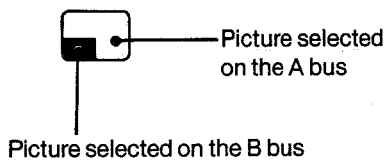
2 Press the EFF button of the PST bus select buttons.
The EFF button and EFFECTS indicator light.

3 Press the WIPE button.
The WIPE button and the upper left button of the wipe pattern select buttons light.

4 Select a desired wipe pattern by pressing a wipe pattern select button.
The pressed button lights.
- To select the pattern with the pattern code, refer to "TO SELECT WIPE PATTERN WITH THE PATTERN CODES".

5 Select the pictures by pressing an A bus select button and a B bus select button.

- The black or colored part of the pattern is for the picture selected on the B bus, and the white part is for the picture selected on the A bus.

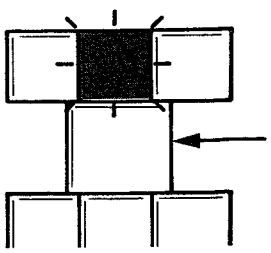


6 Move the EFF lever to the other end.
The program picture will be wiped by the selected wipe pattern.

- The button which corresponds to the program picture blinks.
- The speed of the interchange depends on how fast the lever is moved.

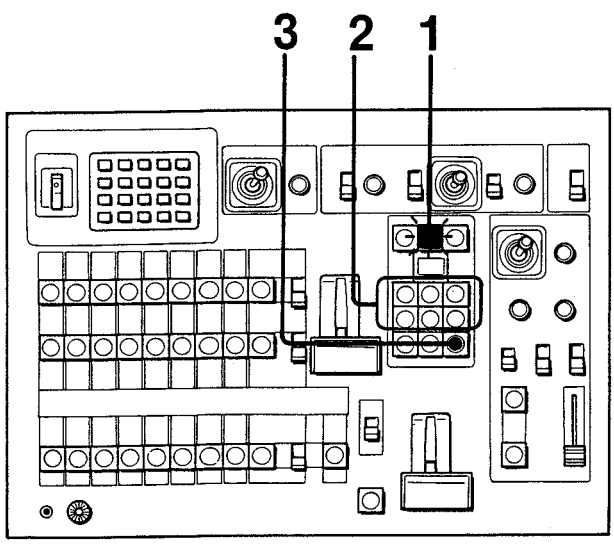
1-7-2. TO SELECT WIPE PATTERNS WITH PATTERN CODS

The desired wipe pattern can be selected by two methods. One is to select the pattern by pressing a pattern code select button. The other is to select the pattern by designating the pattern code. The two methods change cyclically every time the WIPE button is pressed.
When the figure is displayed in the pattern code indication window, a wipe pattern is selected by the pattern code : When the figure is not displayed, a wipe pattern is selected by pressing a wipe pattern select button. The wipe pattern and the pattern code are shown in "TABLE OF WIPE PATTERNS" at the end of this manual, or the supplied WIPE PATTERN LIST.



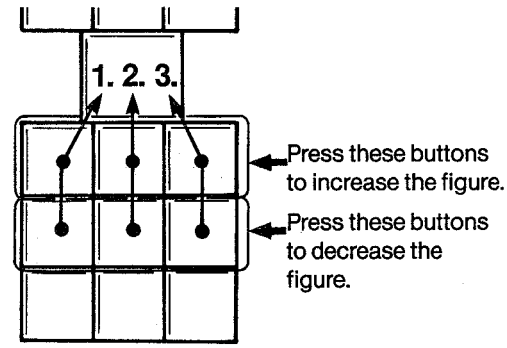
When a figure is displayed:
Selection with the pattern code
When a figure is not displayed:
Selection with a wipe pattern select button

To select a desired wipe pattern with the pattern code, proceed as follows. The other operating procedure is the same as that using the wipe pattern select buttons.



1 Press the WIPE button until the figures appear in the pattern code indication window.
The M button at the right lower end of the wipe pattern select buttons lights.

2 Press the upper two-row buttons of the wipe select buttons until the desired pattern code appears in the window.
The M button and the dots on the right of each figure start blinking.
Three buttons of each row correspond to right, center and left digits in the window.



3 Press the M button.
Blinking of the M button and the dots in the window stops, and the designated pattern is selected.

- When the figure which has not the corresponding wipe pattern is designated, the M button and the dots in the window remains blinking, and the wipe pattern cannot be selected.

Note on wipe patterns of pattern code 300 to 307
When the wipe patterns of pattern code 300 to 307 (mosaic wipe) are selected and the unit is remotely controlled by external equipment such as an BVE-900, it is not possible to wipe at the speed of 8 frames or faster.

1-7-3. SOFTNESS (to soften the wipe pattern edge)

The wipe pattern edge can be softened. The softness can be adjusted with the SOFTNESS/BORDER control.

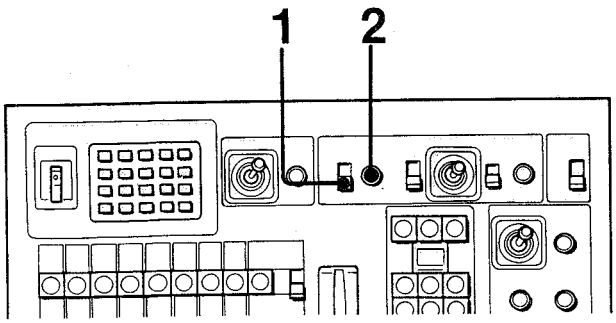


Figure 7 **Softness of wipe pattern edge**

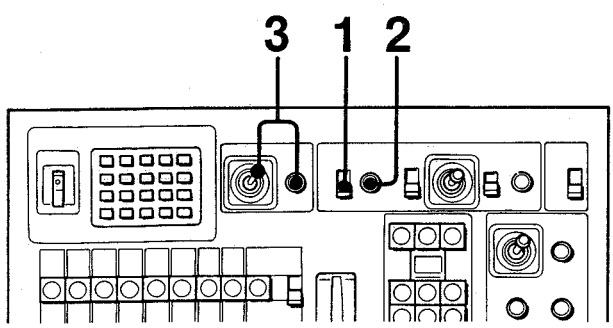
1 Set the SOFT/HARD/BDR selector to SOFT.

2 Turn the SOFTNESS/BORDER control to adjust the softness.

- To obtain the hard edge, set the selector to HARD.

1-7-4. BORDER (to add a border to the wipe pattern edge)

You can border the wipe pattern edge, and color the border.



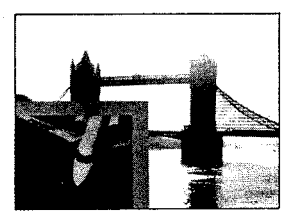


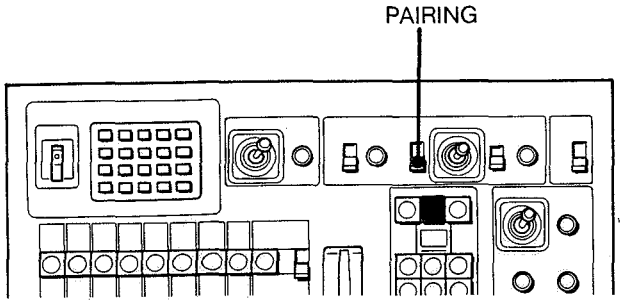
Figure 8 **Bordered wipe pattern edge**

1 Set the SOFT/HARD/BDR selector to BDR.
The edge of the wipe pattern is bordered.

2 Turn the SOFTNESS/BORDER control to adjust the width of the border.

3 Adjust the color of the border by the BACKGROUND COLOR stick and the LUM control.
The adjusting method is the same as the background color, and the color will be the complementary color of the background color. For details, refer to "HOW TO SELECT THE BACKGROUND COLOR".

1-7-5. PAIRING WIPE (to wipe the picture in a grill format)



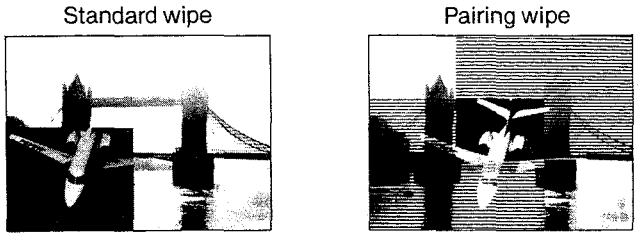
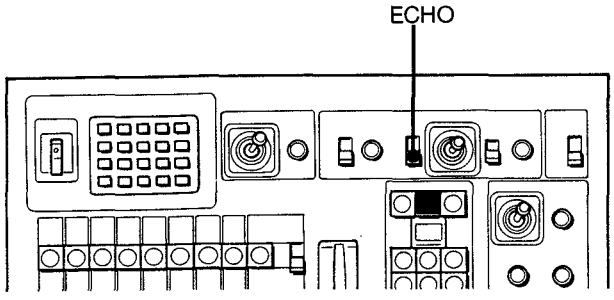


Figure 9 Pairing wipe

In the pairing wipe, the wipe operation is performed in a grill format from opposite ends of the screen. In other words, pairs of scanning lines wipe the picture alternately from either end. To perform pairing wipe, set the PAIRING/ECHO selector to PAIRING.

- The pairing wipe is valid with some patterns. Please refer to "TABLE OF WIPE PATTERNS" for the patterns in which pairing wipe is available.

1-7-6. ECHO WIPE (to wipe the picture gradually)



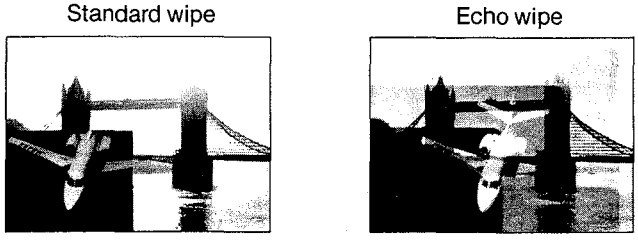


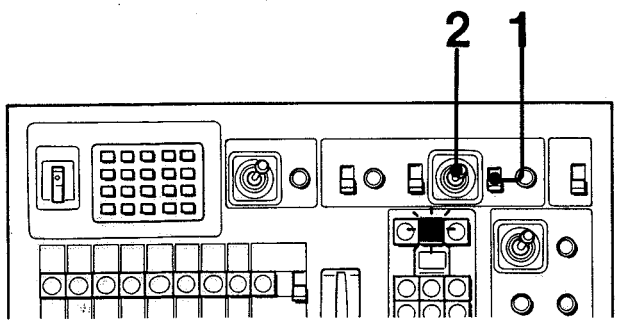
Figure 10 Echo wipe

In the echo wipe, the new picture will be overlapped on the original picture in several steps of gradation at the wipe pattern edge.
To perform echo wipe, set the PAIRING/ECHO selector to ECHO.

- The echo wipe is valid with some patterns. Please refer to "TABLE OF WIPE PATTERNS" for the patterns in which echo wipe is available.

1-7-7. POSITIONER (to position the wipe pattern)

You can set the center of the wipe pattern to any position on the screen by maneuvering the POSITION stick.



Standard position

Center of the pattern moved

Figure 11 **Wipe with positioner**

1 Set the POSITION switch to ON.

2 Maneuver the POSITION stick so that the center of the wipe pattern is settled at the desired position.

- The positioning control is valid with only a few patterns. Please refer to "TABLE OF WIPE PATTERNS" for the patterns whose position can be changed.

1-8. EXTERNAL KEY

A part of one picture is cut out, and another picture is inserted into the cut-out part. The part to be cut out is designated by the picture picked up by a black and white camera connected to the EXT KEY connector. This is called "external keying". The signal picked up by the black and white camera is called a key signal.

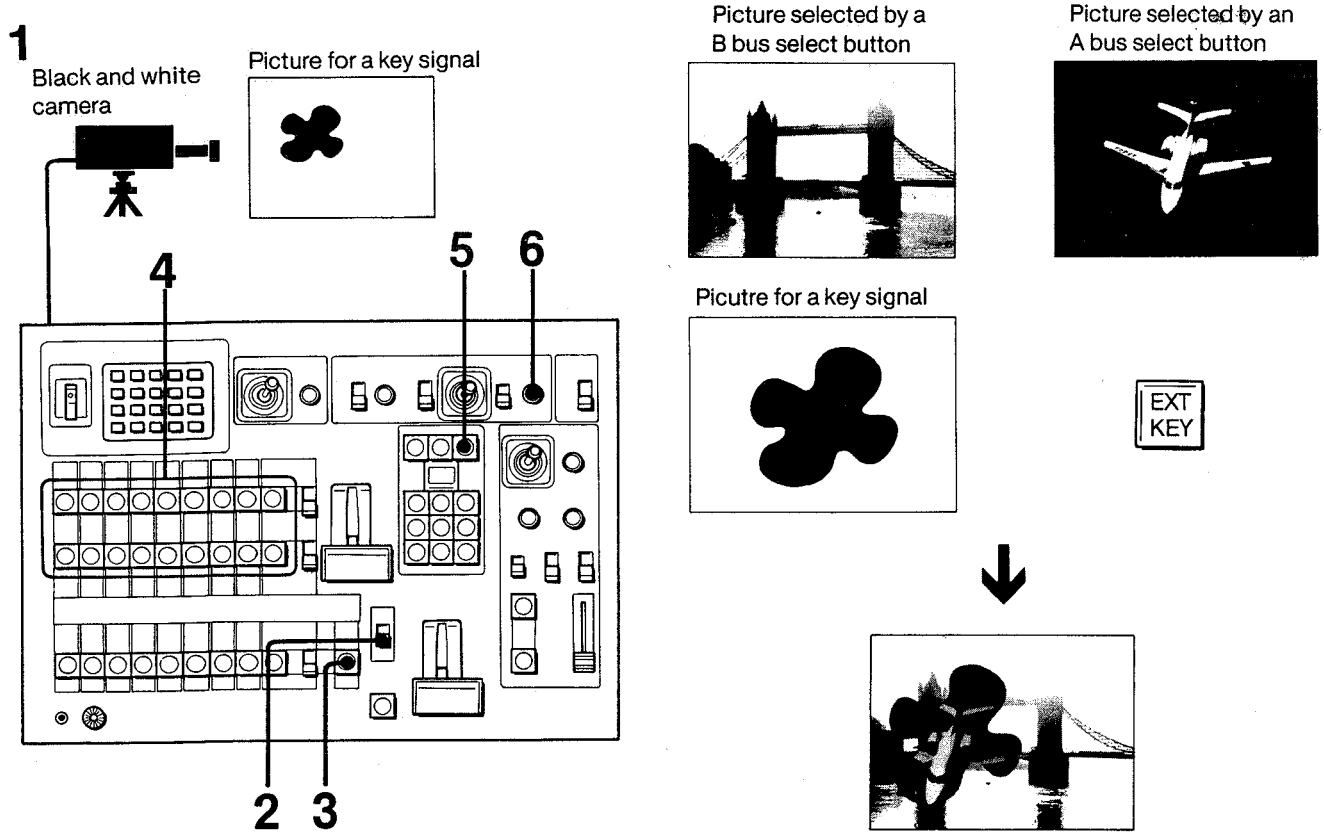


Figure 12 **External key**

1 Pick up the pattern for an external key signal, and adjust the focus, size and position.

2 Set the PGM/PST selector to PGM.

3 Press the EFF button of the PST select buttons.
The EFF button and the EFFECTS indicator will light.

4 Select the pictures by pressing an A bus select button and a B bus select button.

5 Press the EXT KEY button.
The picture selected by a A bus select button is inserted into the picture on the program monitor.

6 Turn the EXT KEY LEVEL control until the outline of the inserted picture will be clear.
If necessary, adjust the size and position of the inserted picture.

Special effects of the external key signal
When an appropriate picture is connected to the EXT KEY connector instead of the picture for a key signal, special effects such as a photograph with high contrast is obtained. The tone of the picture can be adjusted with the EXT KEY LEVEL control.

Standard picture

Picture adjusted with the EXT KEY LEVEL control

Figure 13 **Special effects of the external key signal**

The softness and border effects of wipe can be added to this picture. When the softness effect is used, the tone of the picture is softened, and when the border effect is used, the picture is bordered. The color of border is only black.
The background color can also be adjusted, which changes the color on the screen.

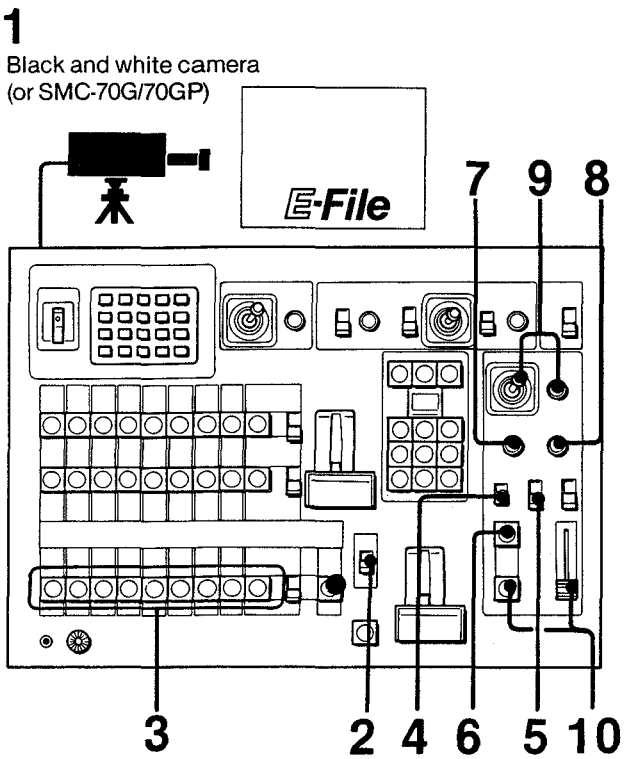
Note

The effects may depend upon the quality of the picture to be used. Use the high quality picture as much as possible.

1-9. DOWNSTREAM KEYER

The captions or figures can be inserted into the picture. This is called "downstream keying". The captions and figures are picked up by a black and white camera connected to the DSK KEY connector, and are colored by the built-in color matte generator.
The characters from an SMC-70G/70GP microcomputer is also inserted into the picture by the downstream keyer. In this case an SMI-7074 NTSC superimposer or a SMI-7074P PAL superimposer is necessary on the SMC-70G/70GP. The character color of the SMC-70G/70G can be used as it is, or selected by the color matte generator built-in the SEG-2550A/2550AP.

1-9-1. OPERATION



1 Pick up the captions and characters by a black and white camera, and adjust the focus, size and inserted position. When the SMC-70G/70GP is used, prepare the SMC-70G/70GP. For details, refer to the instruction manuals furnished with the related devices and software.

2 Set the PGM/PST selector to PGM.

3 Select a picture on which the captions are to be inserted by pressing a PST bus select button.
The pressed button lights.

4 Set the NORMAL/INVERT selector as follows :
When black characters on a white paper are inserted : NORMAL
When white characters on a black paper are inserted : INVERT

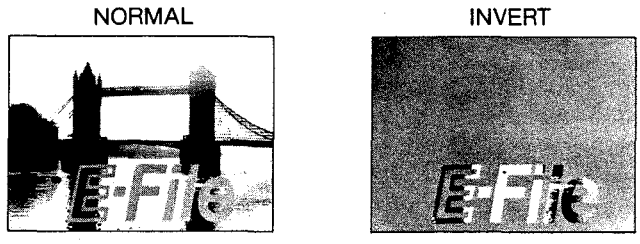


Figure 14 **Setting of the NORMAL/INVERT selector**

5 Set the INSERT switch as follows to designate the color of the inserted characters.
Monochrome characters : B/W
Colored by the color matte generator : CM
Color from the SMC-70G/70GP as it is : EXT

6 Press the PST CUT IN/OUT button.
The button will light, and the characters are added on the picture on the preset monitor.
If necessary, adjust the size and position of the inserted characters.

7 Turn the KEY LEVEL control so that the inserted characters will be clear.

8 Turn the EDGE control so that the flicker at the edge of the characters will stop.
This step is not necessary for the characters from the SMC-70G/70GP.

9 Adjust the color with the COLOR MATTE stick and LUM control when the CM is selected in step 5.
The adjusting method is the same as that of the background color. Refer to "HOW TO SELECT THE BACKGROUND COLOR"

10 Insert the characters into the program picture with the PGM CUT IN/OUT button or INSERT lever.

To insert the characters instantaneously (Cut in)
Press the PGM CUT IN/OUT button. The button lights, and the characters are instantaneously inserted into the picture.

To insert the characters gradually (Fade in)
Move the INSERT lever from the PGM position to the INSERT position. When the lever is started to move, the PGM CUT IN/OUT button lights.

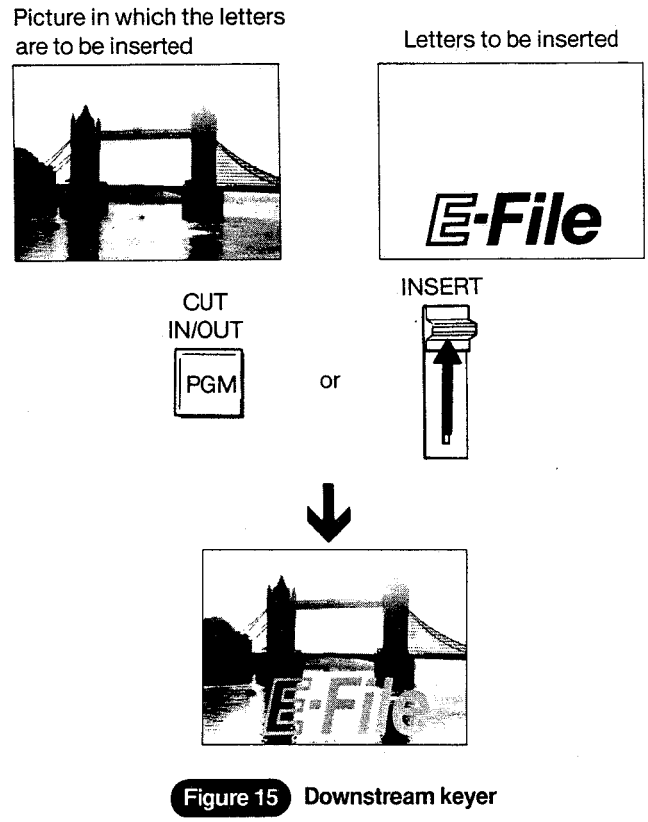


Figure 15 **Downstream keyer**

1-9-2. TO DELETE THE INSERTED LETTERS

To delete the inserted letters on the preset monitor
Press the PST CUT IN/OUT button. The added letters disappear and the button will go out.

To delete the inserted letters on the program monitor

To delete instantaneously (Cut out)
Press the PGM CUT IN/OUT button. The inserted letters disappear and the button goes out.

To delete gradually (Fade out)
Move the INSERT lever from the INSERT position to the PGM position. At the PGM position, the PGM CUT IN/OUT button goes out.

1-9-3. TO ADD SHADOW TO THE INSERTED LETTERS

The addition of shadows to the inserted letters may make the display of letters more effective, especially when inserting white letters or figures into a light picture.
Set the SHADOW selector as follows.

To add a wide shadow : WIDE
To add a narrow shadow : NARW
No shadow : OFF

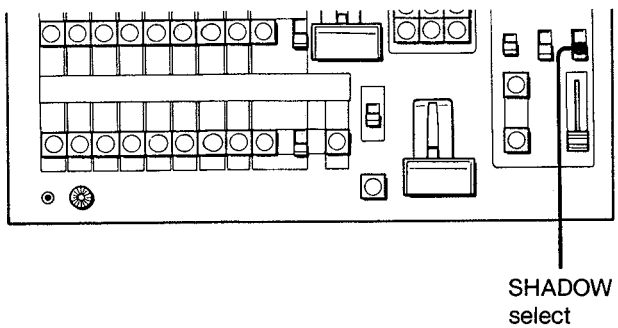
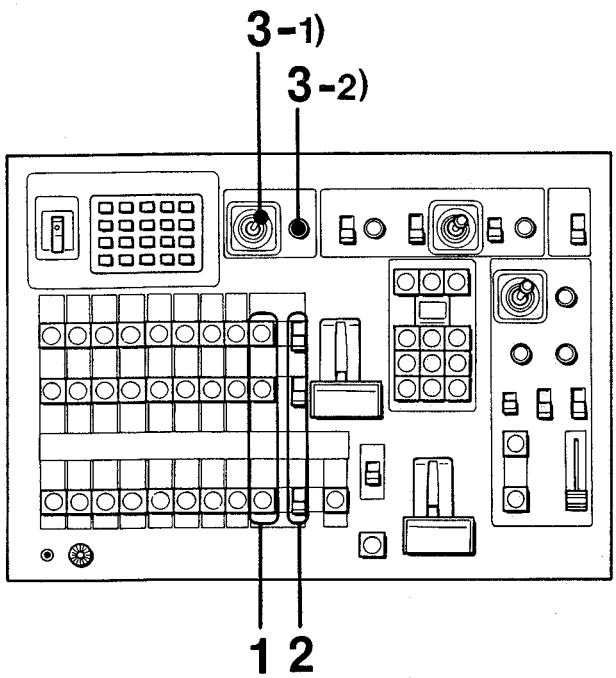


Figure 16 **Shadow effects**

1-10. HOW TO SELECT THE BACKGROUND COLOR

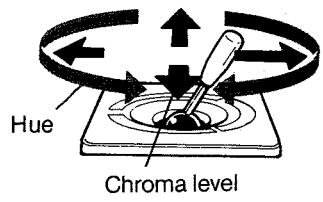
When the BACKGROUND button of the PST bus select buttons, A bus select buttons or B bus select buttons is pressed, the screen will be white, black or colored instead that the picture is displayed. This is called background. The color of the background is selected as follows :



1 Press the BACKGROUND button.
The button lights.

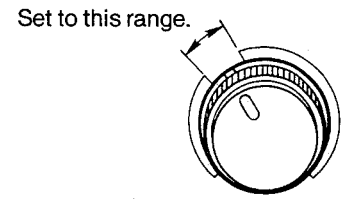
2 Set the BACKGROUND selector as follows :
For a white background : WHT
For a colored background : COL
For a black background : BLK

3 When COL is selected in step 2, adjust the color as follows :
1) Adjust the hue and chroma level with the BACKGROUND stick.
To adjust hue : Turn the BACKGROUND stick.
To adjust the chroma level : Tilt the BACKGROUND stick.



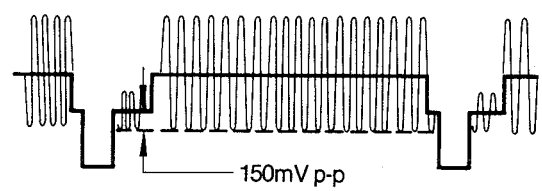
2) Adjust the luminance by turning the LUM control.
Normally set the control within the range illustrated below.

- To set the LUM control outside the indicated range, be sure to monitor the waveform with a waveform monitor.



CAUTION

When using highly saturated color matting, check (on a waveform monitor) that the chroma level does not fall below the value shown in the illustration below. If the LUM control is turned counterclockwise with the chroma level high, picture fluctuation may occur on the equipment connected to the SEG-2550A/2550AP.



1-11. APPLICATIONS

1-11-1. EXAMPLES OF VARIOUS EFFECTS

The following example shows how to use the effects in producing a program.

Example 1

1 Title screen is made by designating the color with the background color and by inserting the title with the downstream keyer.

2 Change the background color to another picture by mixing.

3 Delete the title with the fade-out of downstream keyer.

4 Insert a picture in the displayed picture with external key. (For example to display the current scene and the previous scene simultaneously.)

Example 2

1 In a part of a picture, insert a picture by wipe with positioner.

2 Remain the inserted picture in step 1, change the original picture to background color by cut.

3 Insert the end title into the picture in step 2 with the fade- in of downstream keyer.

4 Fade out to black background by mixing.

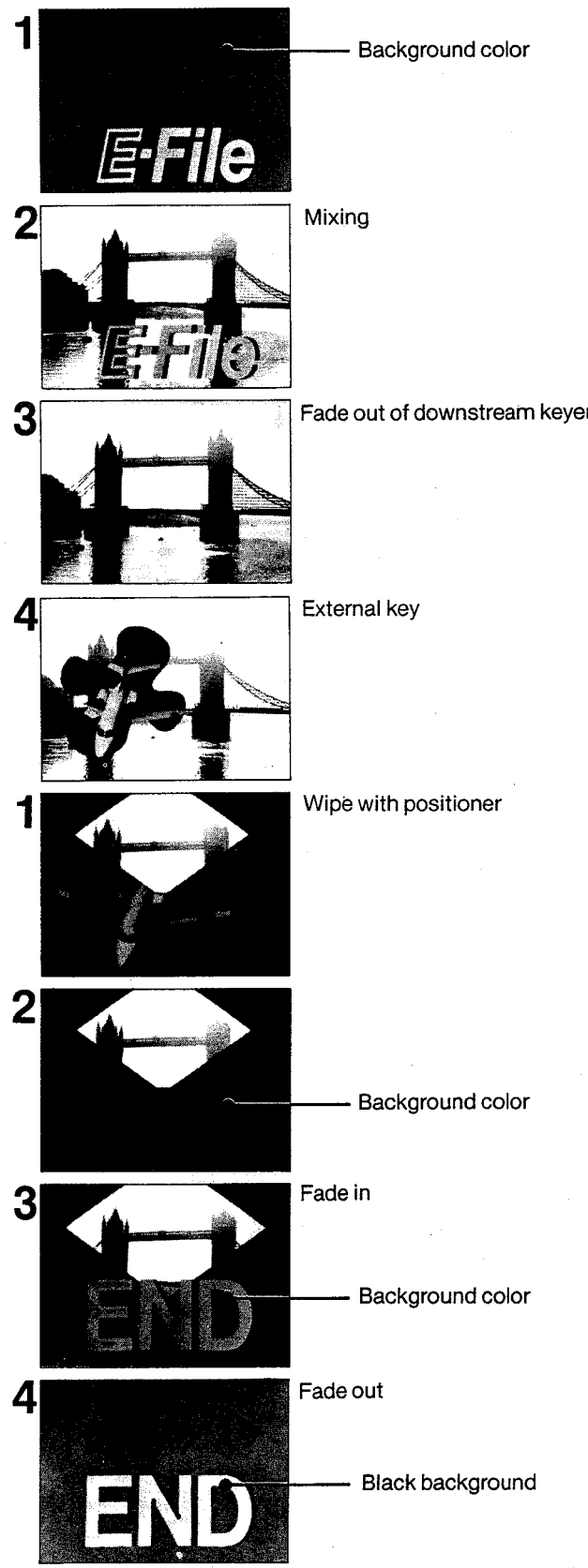
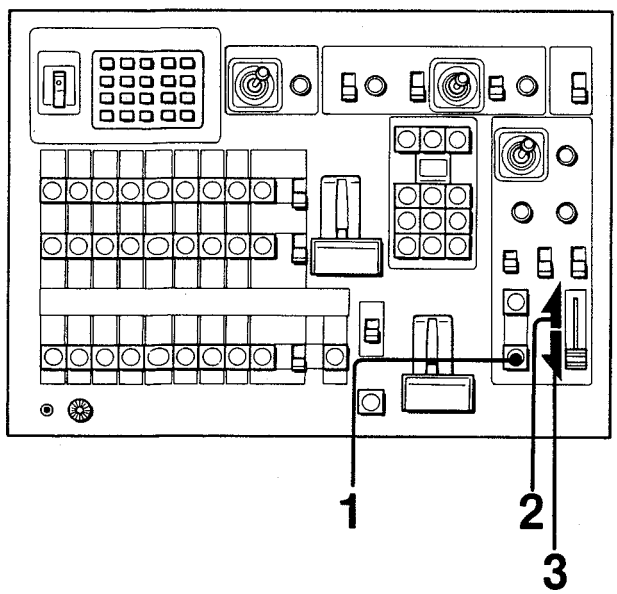


Figure 17 Examples of effects

1-11-2. CONBINATION USE OF PGM CUT IN/OUT BUTTON AND INSERT LEVER

In downstream keyer, the letters are instantaneously inserted (Cut-in) or deleted (Cut-out) every time the PGM CUT IN/OUT button is pressed. While with the INSERT lever, the letters are gradually added (Fade-in) or deleted (Fade-out) when it is moved from one end to the other.
The combination use of the PGM CUT IN/OUT button and INSERT lever makes it possible to obtain such effects as Cut-in/Fade-out or Fade-in/Cut-out.

Cut-in/Fade-out

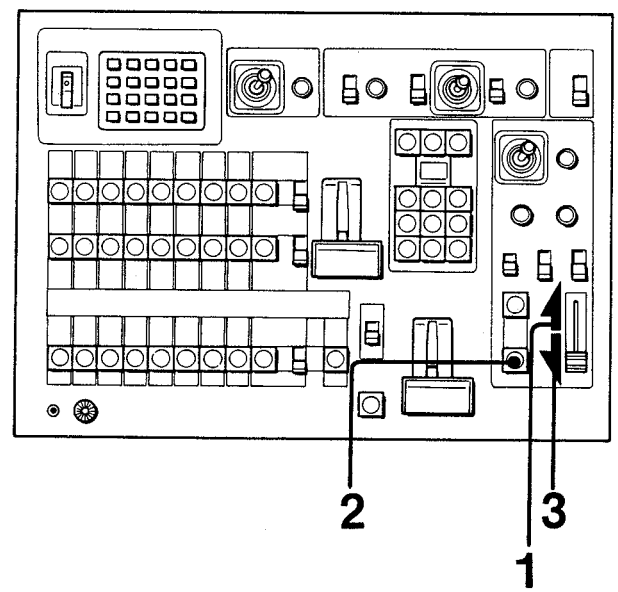


1 Press the PGM CUT IN/OUT button.
The button lights, and the letters are instataneously inserted into the picture. (Cut-in)

2 Move the INSERT lever from the PGM position to the INSERT position.
The picture does not change.

3 Move the INSERT lever from the INSERT position to the PGM position.
The inserted letters are gradually deleted from the picture. At the PGM position, the letters completely disappear and the PGM CUT IN/OUT button goes out. (Fade-out)

Fade-in/Cut-out



1 Move the INSERT lever from the PGM position to the INSERT position.
The letters are gradually inserted into the picture. At the INSERT position, the PGM CUT IN/OUT button lights. (Fade-in)

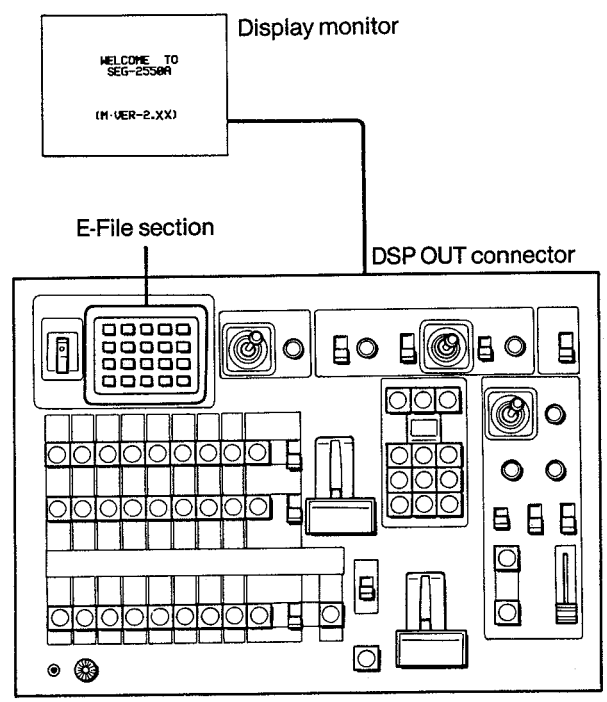
2 Press the PGM CUT IN/OUT button.
The inserted letters are instantaneously deleted from the picture, and the button goes out. (Cut-out)

3 Move the INSERT lever to the PGM position.
The picture does not change.

1-12. WHAT IS "E-File"?

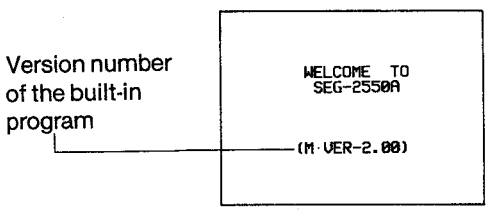
The SEG-2550A/2550AP can memorize the setting of switches and buttons and the movement of the controls, levers and sticks. The settings and movement can easily be reproduced. In this section, how to memorize the effects, and how to recall and execute the memorized effects, etc. are explained.

Each effect, such as cut, wipe, etc. to be executed is called an event. The SEG-2550A/2550AP memorizes the setting of buttons and switches and movement of levers and sticks (this is called transition) event by event.
The memory of events is called "E-File (Event-file)". The E-File is composed of two memories, the event memory and the transition memory. The event memory can memorize up to 63 events, and the transition memory can memorize 4 through 6 minutes of transition period. The transition period is the total period required to execute all memorized lever and stick operations. The limit of the period differs depending upon the levers or sticks to be operated. When either of the event or transition memory is full, the event cannot be memorized.
The events memorized in the E-File can be recalled at any time and be executed by the TAKE button. Instead of the TAKE button, execution can be remotely controlled by a microcomputer or a VTR editing control unit.
The operation of E-File will be done by the keys in the E-File section.



1-13. DISPLAY OF E-File DATA

For the E-File operation, connect a monitor to DSP OUT connector to display the data of the E-File (this is called a display monitor). The data of the E-File can also be displayed on the preset monitor by setting the INDICATION selector to DSP. (On the preset monitor, some mode cannot be displayed. So the use of the display monitor is recommended.)
When the power is turned on, the following is displayed on the display monitor.



To display the data of the E-File, press the C key of the E-File section. The data of an E-File is composed of three pages.

Notes

- After the power is turned on, about 5-second period is necessary to obtain a normal picture.
- The E-File data is displayed approximately 10 seconds after the unit power is turned on.

To change the displayed page
Press the ↓ key. Every time the ↓ key is pressed, the following page is displayed, and at page 3, the display is returned to page 1.

To change the displayed event
Three events are displayed at a time. To display the event which is not displayed, press the ← key or → key.

1-13-1. DATA ON PAGE 1

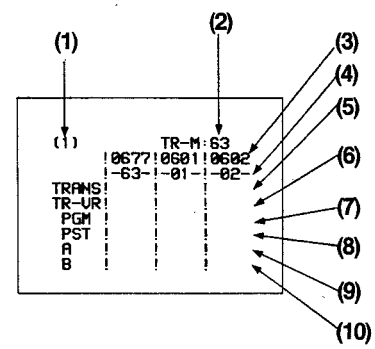


Figure 18 Data on page 1

(1) Page number

(2) Remained transition memory

(3) Call number for BVE-900

(4) Event number

(5) Transition time in frame numbers

(6) TR-VR (levers and sticks used in the event)
P/P: PGM/PST MIX lever
EFF: EFF lever
DSK: INSERT lever
POS: POSITION stick
BG-C: BACKGROUND COLOR stick
BG-Y: LUM contorol of BACKGROUND COLOR
CM-C: COLOR MATTE stick
CM-Y: LUM control of COLOR MATTE
B/S: SOFTNESS/BORDER control

(7) PGM (picture selected on the program bus)
(8) PST (picture selected on the preset bus)
EFF: The EFF button of the PST bus select buttons is pressed.
1-8: The button of the PST bus select buttons corresponding to the indicated number is pressed.
WHT: The BACKGROUND selector of the PST bus select section is set to WHT.
COL: The BACKGROUND selector of the PST bus select section is set to COL.
BLK: The BACKGROUND selector of the PST bus select section is set to BLK.

(9) A (picture selected on the A bus)
(10) B (picture selected on the B bus)
1-8: The button of the A bus or B bus select buttons corresponding to the indicated number is pressed.
WHT: The BACKGROUND selector of the A bus or B bus select section is set to WHT.
COL: The BACKGROUND selector of the A bus or B bus select section is set to COL.
BLK: The BACKGROUND selector of the A bus or B bus select section is set to BLK.

1-13-2. DATA ON PAGE 2

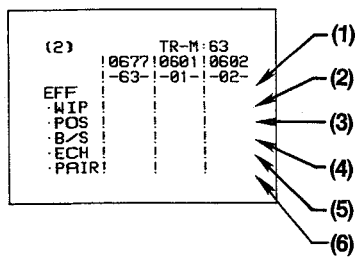


Figure 19 Data on page 2

The data of the mixing, wipe and external key is displayed.

(1) EFF (effect to be used)
WIP: The wipe is selected.
MIX: The mixing is selected.
EXT: The external key is selected.

(2) WIP (pattern code of wipe pattern)
000 - 307: Pattern code of the selected wipe pattern.

(3) POS (setting of the POSITION switch)
ON: The POSITION switch is set to ON.

(4) B/S (setting of the SOFT/HARD/BDR selector)
BDR: The SOFT/HARD/BDR selector is set to BDR.
SOFT: The SOFT/HARD/BDR selector is set to SOFT.

(5) ECH (setting of the PAIRING/ECHO selector)
ON: The PAIRING/ECHO selector is set to ECHO.

(6) PAIR (setting of the PAIRING/ECHO selector)
ON: The PAIRING/ECHO selector is set to PAIRING.

1-13-3. DATA ON PAGE 3

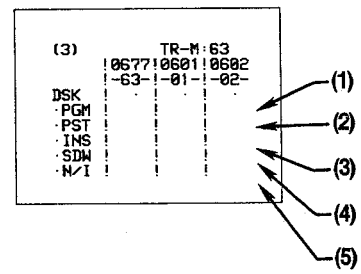


Figure 20 Data on page 3

The data of downstream keyer is displayed.

(1) PGM (condition of the program line)
(2) PST (condition of the preset line)
ON: The letters are inserted into the picture of the program or preset bus by downstream keyer.

(3) INS (setting of the INSERT selector)
COL: The INSERT selector is set to COL.
B/W: The INSERT selector is set to B/W.
EXT: The INSERT selector is set to EXT.

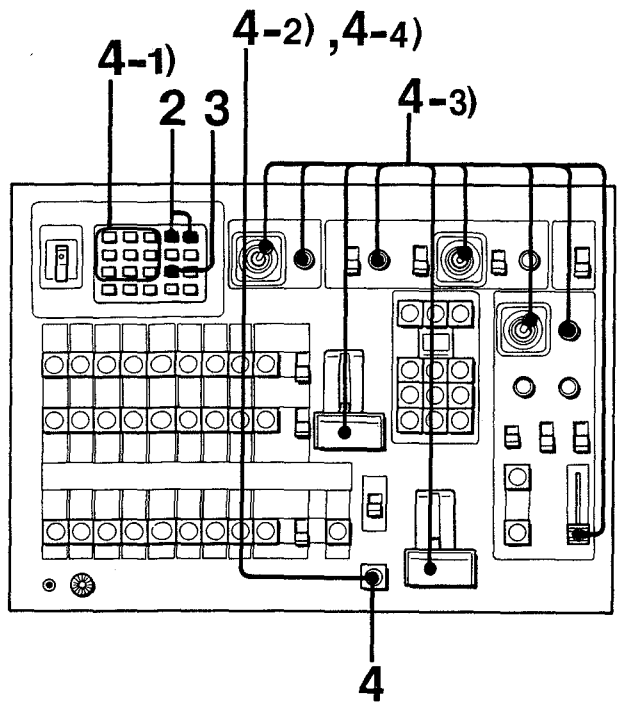
(4) SDW (setting of the SHADOW selector)
WIDE: The SHADOW selector is set to WIDE.
NARW: The SHADOW selector is set to NARW.

(5) N/I (setting of the NORMAL/INVERT selector)
NORM: The NORMAL/INVERT selector is set to NORMAL.
INVT: The NORMAL/INVERT selector is set to INVERT.

1-14. TO STORE THE DATA IN MEMORY (Min)

To memorize the setting of buttons or switches and the transition of the levers and sticks, proceed as follows.

OPERATION



These figures blink, and the data is entered in this column.

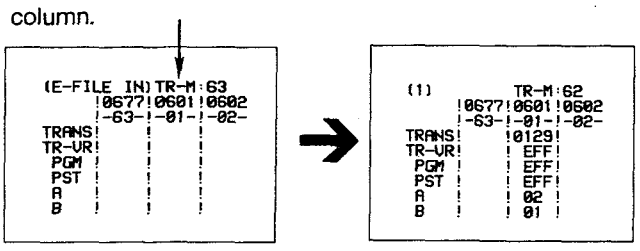


Figure 21 **Data entry**

1 Set the switches and buttons on the SEG-2550A/2550AP to the condition to be memorized.

2 Place the event number in which the data is to be memorized at the center by pressing the ← key or the → key.

3 Press the Min key.
The event number at the center on the screen starts blinking, and the TAKE button also starts blinking.

4 Execute the effect to be memorized as follows:
Cut
Press the TAKE button, and all of the data set on the panel is automatically memorized at a time.
Transition
1) Designate the lever or stick to be used by the corresponding number, 0 through 9. The numbers of sticks or levers are printed on the control panel.
To use the PGM/PST MIX lever : 0
To use the EFF lever : 1
To use the INSERT lever : 3
To use the POSITION stick : 4
To use the BACKGROUND COLOR stick : 5
To use the LUM control of BACKGROUND COLOR : 6
To use the COLOR MATTE stick : 7
To use the LUM control of COLOR MATTE : 8
To use the SOFTNESS/BORDER control : 9
2) Press the TAKE button.
Memorizing the movement of the designated lever or stick starts
3) Move the stick or lever designated in step 1).
4) Press the TAKE button again at the end of operation.
Memorizing the data is terminated. The period from step 2) through 4) is also memorized in frame numbers and displayed in "TRANS".

The data of an event is memorized. Repeat steps 1 through 4 to memorize the data more.

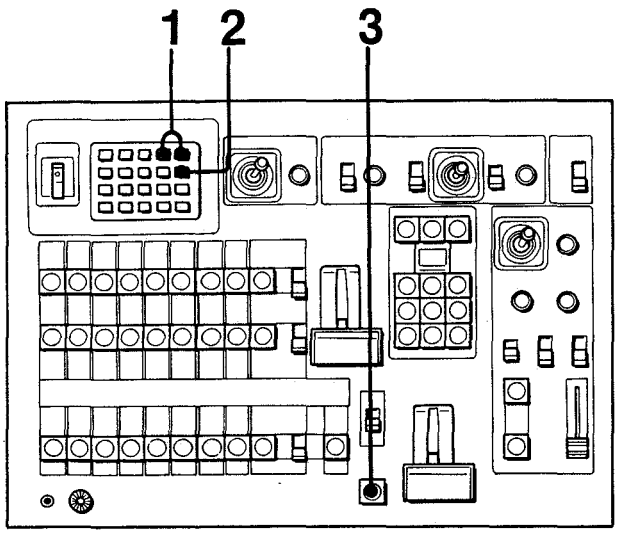
Notes on data entry

- The event number can be automatically increased by one. Refer to "MODE SETTING".
- In the file in which the data has been memorized, the data cannot be entered. To enter new data, erase the memorized data, and enter the new data. For details on erasing data, refer to "TO ERASE DATA".
- When the transition memory is full, the indication of TR-M will be FULL, and new data cannot be entered. To enter the data, erase the data memorized in E-file.
- Even if the TR-M indication is FULL, certain special effects unrelated to the transition memory (such as CUT) can be memorized, if the event memory is not full.
- The transition memory and the event memory are separate. Transitions are memorized in the order in which they are executed regardless of the event number sequence. If an event number (except for the last in a transition memory map) is cancelled, its space will not be saved. No other event number may be substituted in the cancelled event number's space.

1-15. TO RECALL AND EXECUTE THE MEMORIZED DATA (MR)

The data memorized in the E-File can be recalled and be executed.

1-15-1. OPERATION




```
(E-FILE OUT)
      !0677!0601!0602
      !-63-!-01-!-02-
TRANS!     !0129!0104
TR-VR!     ! EFF! DSK
 PGM !     ! EFF! EFF
 PST !     ! EFF! EFF
 A   !     ! 02 ! 02
 B   !     ! 01 ! 01
```

Figure 22 **Recalled data**

1 Place the event number to be used at the center of the screen by pressing the ← key or the → key.

2 Press the MR key.

3 Press the TAKE button.
The event to be recalled will be executed.
Every time the TAKE button is pressed, the event is executed.

- When the MR key is pressed after selecting the event in which no data is memorized, nothing occurs.
- The event can be executed repeatedly, or two or more events can be executed automatically. Refer to "MODE SETTING".

1-15-2. TO EXECUTE ANOTHER EVENT

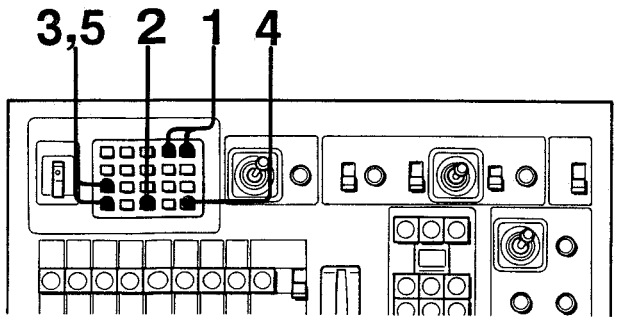
Press the C key one time, and recall and execute another event by following steps 1 through 3 mentioned above.

1-15-3. TO TERMINATE THE EXECUTION MODE

Press the C key twice, and the unit can be operated manually. If the key is not pressed twice, the SEG-2550A/2550AP keeps the mode to recall and execute the event.

1-16. TO ERASE DATA (ERASE)

When the capacity of memory becomes full, or you want to enter the data in the event in which the data has already been memorized, the memorized data should be erased.



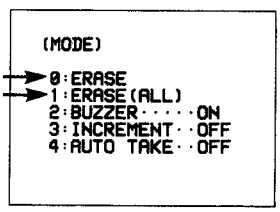


Figure 23 **To erase data**

1 Place the event number whose data is to be erased at the center by pressing the ← key or the → key.
To erase the data in all events simultaneously, this step is not necessary.

2 Press the MOD key.
The menu of the mode is displayed.

3 **To erase an event**
Press the 0 key.
To erase all events
Press the 1 key.

4 Press the SET key.

5 Press the key pressed in step 3 again.
The data in the designated event(s) are erased.

1-17. MODE SETTING (MOD)

Turning the buzzer on or off, auto increment of an event number, repeated execution of an event can be set.
Press the MOD key to display the mode menu.

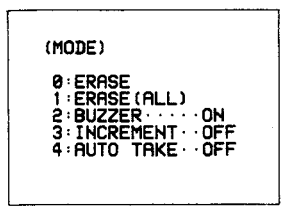


Figure 24 **Mode menu**

1-17-1. TO TURN ON AND OFF THE BUZZER

Every time the event is executed, the buzzer sounds. The buzzer can be cut off by setting "2:BUZZER".
ON: The buzzer sounds.
OFF: The buzzer does not sound.

1 Press the 2 key.
The figure "2" on the screen starts blinking.

2 Press the 2 key again.
ON/OFF setting is changed.

1-17-2. TO INCREASE THE EVENT NUMBER AUTOMATICALLY

To memorize or recall the data of the event, the event number can be automatically increased by one by setting "3:INCREMENT".
ON: The event number is automatically increased by one.
OFF: The event number does not change automatically.

1 Press the 3 key.
The figure "3" on the screen starts blinking.

2 Press the 3 key again.
ON/OFF setting is changed.

1-17-3. TO EXECUTE AN EVENT REPEATEDLY

The event recalled can be executed repeatedly by setting "4:AUTO TAKE".
ON: When the TAKE button is pressed, the designated event is executed repeatedly until the C key is pressed to stop the execution.
OFF: When the TAKE button is pressed, the designated event is executed once and stops.

1 Press the 4 key.
The figure "4" on the screen starts blinking.

2 Press the 4 key again.
ON/OFF setting is changed.

TO EXECUTE ALL EVENTS REPEATEDLY

When both "3:INCREMENT" and "4:AUTO TAKE" are set to ON, the execution of events starts from the designated one by pressing the TAKE button, and all events are repeatedly executed until the C key is pressed to stop execution.

1-18. MEMORY BACKUP

The data memorized in the E-File can be held for about 24 hours by the built-in power source condensor even if the power is turned off. To charge the back-up condenser, power supply for about two hours is required. When you use the SEG-2550A/2550AP for the first time, supply power for two hours or more continuously.

1-19. IN CASE OF EMERGENCY

If some fault occurs in the power supply section, the temperature in the unit becomes too high. In such a case, a buzzer sounds continuously to alert to the fault, and the emergency notice is displayed on the display monitor. Turn the power off immediately, and contact your authorized Sony dealer. If this condition remains, the power is automatically turned off after a while.

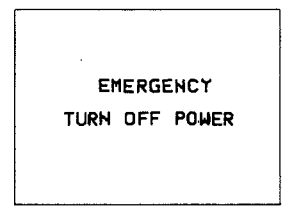


Figure 25 Emergency notice

The SEG-2550A/2550AP can be controlled by a VTR editing control unit or by a microcomputer through the RS-232C port. To control the SEG-2550A/2550AP with external equipment, press the REM key of the E-File section on the control panel. The unit then enters the remote control mode, and the controlled condition is displayed on the display monitor. The present condition is indicated by "*" before one of the displayed messages:

DIRECT: The SEG-2550A/2550AP is controlled by a VTR editing control unit or a microcomputer. In this mode, the operation can be controlled simultaneously with the control panel of the SEG-2550A/2550AP.

E-File: The operation of "MR" using the E-File of the SEG-2550A/2550AP is remotely controlled.

SAVE: The data of the E-File is being saved on the floppy disc of the external equipment.*

LOAD: The data of the E-File saved on the floppy disc of the external euquipment is being loaded into the E-File memory of the SEG-2550A/2550AP.*

* To save and load the data of the E-File, the software to save and load the data must be provided on the external equipment.

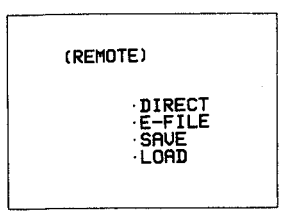


Figure 26 Display of remote mode

1-20 CONTROL WITH A BVE-900 EDITING CONTROL UNIT

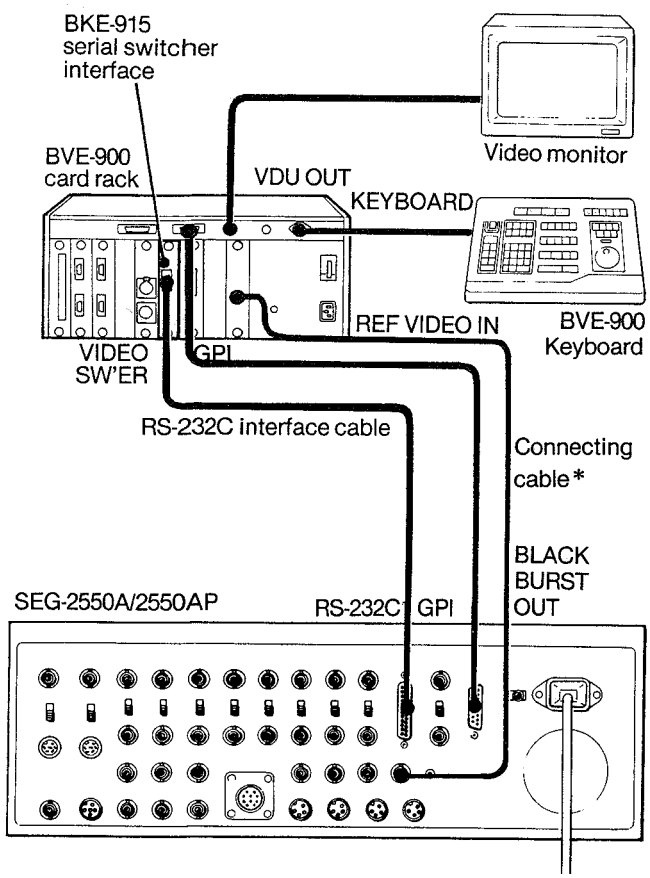
When an BVE-900 editing control unit is used with the SEG-2550A/2550AP, the SEG-2550A/2550AP can be remotely controlled in synchronization with the edit point of the video signal. With the BVE-900, the following items can be controlled:

- Designate two program sources to be used for an effect
- Select the effect to be used
- Select the wipe pattern
- Designate the transition time
- Control of the E-File

- When the BVE-900 is used, a BKE-915 serial switcher interface should be inserted into the BVE-900.

1-20-1. CONNECTIONS

Connect the BVE-900 and the SEG-2550A/2550AP as shown below.
For the other equipment to be used, please refer to "BASIC CONNECTIONS" and "TO CONNECT AN SMC-70G/70GP FOR DOWNSTREAM KEYER".



* Make the connecting cable for GPI connectors using the connectors supplied with the BVE-900 and SEG-2550A/2550AP. Be sure to connect 1 pin of the BVE-900 to 1 pin of the SEG-2550A/2550AP, and 2 pin to 2 pin.

1-20-2. PREPARATIONS

On the SEG-2550A/2550AP
Turn the power of the SEG-2550A/2550AP on, and press the REM key of the E-File section. The display for the remote mode will appear on the display monitor.

On the BVE-900
Set the BVE-900 in the SYSTEM SETUP mode, and designate which equipment connected to the VIDEO IN 1 through 8 connectors on the SEG-2550A/2550AP corresponds to the R-VTR (recorder), P1 through P3 (player 1 through 3) and AUX1, AUX2 (auxiliary 1, 2) in the GROUP-4 SW'ER BLOCK mode. AUX 1 and AUX 2 can be designated for the camera input, the color bars or the background* of the SEG-2550A/2550AP.

* The color of the background is designated by the BACKGROUND selector on the SEG-2550A/2550AP.

Example:
Setting of the BVE-900 when AUX 1 is designated for the color bars and AUX 2 is designated for the background:

	Input channel	Reel number*
AUX 1 (BYTE-5)	08 (channel 8)	0999
AUX 2 (BYTE-6)	09 (channel 9)	BLK

* The initial setting of the reel number is 0999 for AUX 1 and BLK for AUX 2.

1-20-3. OPERATION

To select program sources
Select the signal sources connected to the SEG-2550A/2550AP with the source selection keys on the keyboard of the BVE-900.
When a key is pressed, the signal designaged in the "PREPARATIONS" will be selected.

To designate the effect to be used
Designate the effect to be used to change the pictures with the effect type keys on the keyboard of the BVE-900. The BVE-900 can designate six types of effect: CUT, DISS (dissolve), WIPE, KEY, PTN KEY (pattern key) and MAN (manual). The SEG-2550A/2550AP, however, cannot execute the PTN KEY.

CUT: Same as cut on the SEG-2550A/2550AP
DISS: Same as mixing on the SEG-2550A/2550AP
WIPE: Wipe pattern can be selected from 137 patterns by designating three digits from 000 through 307.
- When an incorrect pattern code is designated, the SEG-2550A/2550AP execute the effect designated for the preceding event.

KEY: The signal connected to the EXT KEY connector on the SEG-2550A/2550AP is used as a key signal. Of the key operations available on the BVE-900, only CUT IN, CUT OUT and KEY-DELAY can be executed on the SEG-2550A/2550AP.
MAN: The BVE-900 designates the VTRs to be used, and executes the synchronization of the VTRs. Other operations are done on the SEG-2550A/2550AP.

To designate the transition time

When wipe or dissolve is executed by the BVE-900, the transition time must be designated instead of moving the EFF lever on the SEG-2550A/2550AP. The wipe and dissolve will be executed in the designated period. The BVE-900 can designate a period from 00 second 00 frame through 59 seconds 29 frames in NTSC, or 00 second 00 frame through 59 seconds 24 frames in PAL, but on the SEG-2550A/2550AP, only the following periods can be executed.

NTSC : 0 through 7, 9, 13, 39 through 1023 frames (34 seconds 3 frames)

PAL : 0 through 6, 8, 10, 16, 32 through 1023 (40 seconds 23 frames)

If a period other those that mentioned above is selected, the period longer than and nearest to the designated one is used. For example, if the designated period is 8 frames in NTSC, the effect will be executed in 9 frames.

Notes

- When the wipe patterns of pattern code 300 to 307 (mosaic wipe) are selected, it is not possible to wipe at a speed of 8 frames or faster.
- When the transition time is designated by the BVE-900 and the effect is executed by the SEG-2550A/2550AP, the actual period may be shorter than the designated one.
- When the transition time is designated as 1 frame, the SEG-2550A/2550AP may not execute the designated effect correctly, instead it may change the picture by cut.

1-20-4. OPERATION OF E-FILE

The operation to store the data in the E-File memory can be controlled by the BVE-900. The BVE-900 can also recall the E-File data from the SEG-2550A/2550AP and use it in the EDL (Edit Decision List) to execute the editing automatically.

To memorize the data in the E-File

1 Set the GPI-1 to EFFECT in "INIT mode MENU 1" on the BVE-900.

2 Set the effect to MAN (manual) on the BVE-900.

3 Select the program sources for the A-bus and B-bus on the BVE-900, and locate the IN points of the R-VTR and program sources.

4 Press the C key on the SEG-2550A/2550AP twice.

5 Perform steps 1 through 4-1) in "TO STORE THE DATA IN MEMORY (Min)" section to set the switches and buttons to the condition to be memorized.

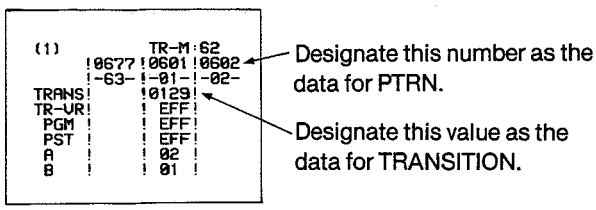
6 Press the PREVIEW button on the BVE-900.
The tapes of the R-VTR and program sources start running.

7 When the tapes reach to the IN points, the buzzer sounds on the SEG-2550A/2550AP. Start moving the stick or lever.

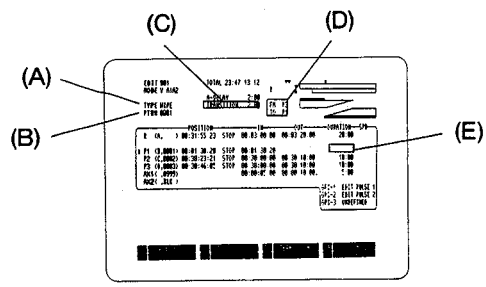
8 When the operation of the stick or lever ends, press the TAKE button on the SEG-2550A/2550AP.
The setting of switches and buttons and the operating procedure of the stick or lever are memorized.

9 Press the ALL STOP key on the BVE-900.
The tapes stop running.

To recall and execute the memorized data
To recall and execute the data memorized in the E-File of the SEG-2550A/2550AP on the BVE-900, designate the wipe as the effect, and the call number for the BVE-900 (06XX), which is displayed above the event number of the E-File data, as the pattern code (PTRN). Then the edit using the E-File data of the SEG-2550A/2550AP will be executed.
E-file data



Setting of the BVE-900



(A) Designate WIPE.
(B) Designate the call number of the E-File to be used like "06XX".
(C) Designate the value of the TRANS of the E-File data in frame numbers.
(D) Do not change the setting.
(E) Designate the value larger than the data of TRANSITION as the duration of "TO" source.

After setting the above items, set the SEG-2550A/2550AP in remote mode, and press the PREVIEW key on the BVE-900. The rehearsal using the designated E-File will be executed. To execute the editing, press the REC key on the BVE-900.

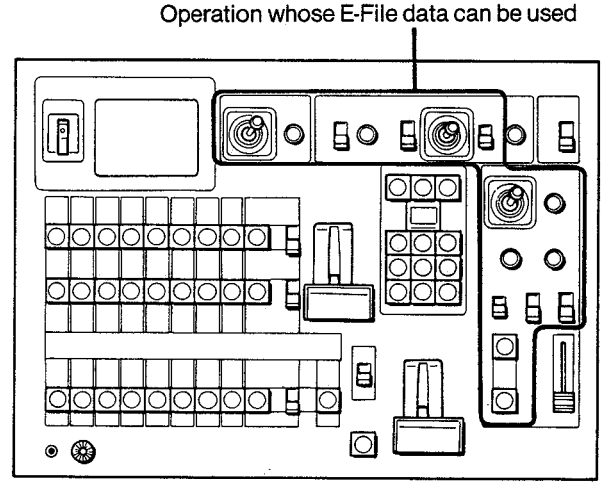
Automatic editing using the EDL
When the above procedure is performed, the E-File data is kept in the EDL of the BVE-900. When the editing using the EDL is executed on the BVE-900, the SEG-2550A/2550AP is also controlled together with the BVE-900 by the EDL, and the editing using the E-File data will be executed.

1-20-5. OPERATION LINKING WITH THE E-FILE

The E-File data recalled and executed by the BVE-900 will be effective until the next E-File data is recalled. Using this function, the data which cannot be controlled by the BVE-900 such as border, softness, pairing, echo and position of wipe, color of background, etc., can be used with the following procedures.

- When this function is to be used, be sure to set the AUTO TAKE of the mode setting of the SEG-2550A/2550AP to OFF.

Operation whose E-File data can be used



1 Recall and execute the event whose data is to be used.

2 Press the C key of the SEG-2500A/2550AP one time. The TAKE button starts blinking.

3 Press the EDT key of the SEG-2550A/2550AP. The SEG-2550A/2550AP is set in remote mode.

4 Execute the designated effect on the BVE-900.

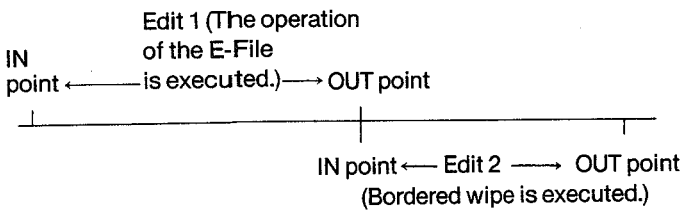
To use the data of another event, press the C key one time, and repeat steps 1 through 4.

To finish the operation linking with the E-File, press the C key two times. The blinking of the TAKE button stops.

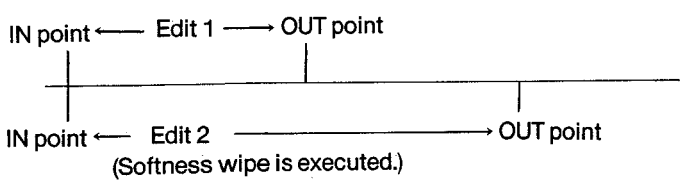
Linking operation in the EDL

When the edit using the E-File data is included in the EDL, the following operation will be possible.

- The E-File data is effective in the edits followed to the edit using the E-File.
  For example, when the wipe with border is executed using the E-File data, the wipe will be bordered in the next edit in which wipe is designated by the BVE-900.
  Data
  Edit 1: Bordered wipe using the E-File data
  Edit 2: Wipe designated by the BVE-900
  Execution



- When the operation which cannot be controlled by the BVE-900 is stored in the E-File, the combined operation of the E-File and the BVE-900 will be possible.
  Data
  Event 1 (0601): Softness wipe
  Edit 1: Designate 0601 (event 1) as the data for PTRN of wipe
  Edit 2: Designate wipe on the BVE-900.
  Designate the same IN point as that of Edit 1.
  Execution



To release the linking operation

Designate 0600 as the data for the PTRN of wipe on the BVE-900, and 1 frame or more as the data for TRANSITION and DURATION. Then the E-File data will be ineffective in the following edits.
On the SEG-2550A/2550AP, the control panel will be activated.

- The IN point of the edit followed to the edit whose PTRN data is 0600, should be set to the same point as that of the edit with the PTRN data of 0600.

1-20-6. OPERATION OF THE SEG-2550A/2550AP CONTROLLED BY THE BVE-900

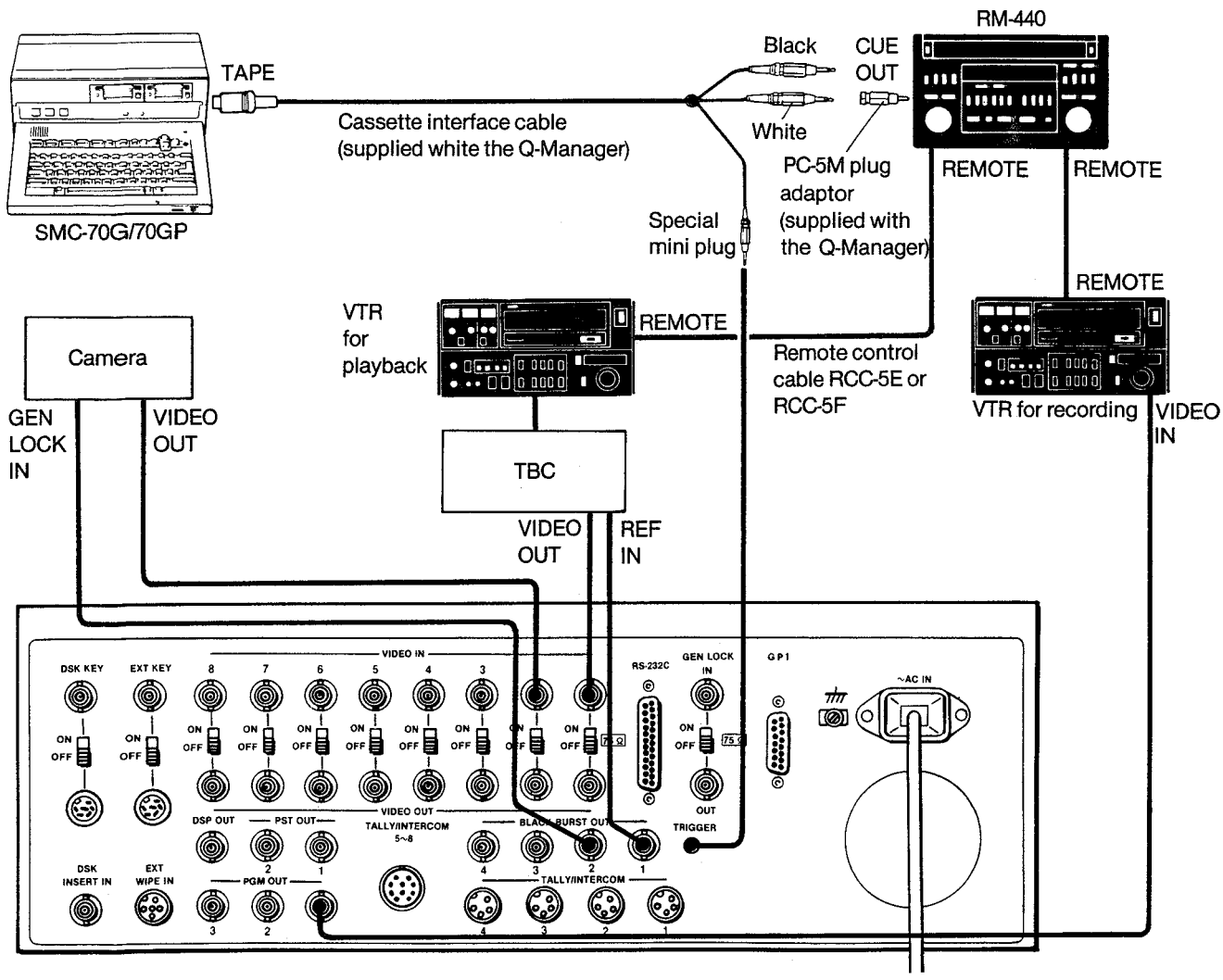
Even when the SEG-2550A/2550AP is controlled by the BVE-900, the control panel of the unit is active unless the TAKE button is blinking. After designating an item with the BVE-900, designate another item with the SEG-2550A/2550AP, and the item designated by the SEG-2550A/2550AP will be effective. However, the EFF lever is not operative when executing an effect designated by the BVE-900. To use the EFF lever, move the lever to the A bus side after executing the designated effect. Then the EFF lever can be used.
Using this function, the following operation will be possible.

- While the effect designated by the BVE-900 is being executed, the letters can be inserted and deleted with the PGM CUT IN/OUT buttons or INSERT lever of the DOWNSTREAM KEYER section on the SEG-2550A/2550AP.
- With the data of two program sources selected by the BVE-900 retained, another program source can be designated with the SEG-2550A/2550AP.
  For example, when the setting by the BVE-900 is to change from program 1 to program 2, a change from program 1 through program 7 will be possible without changing the setting mode by the BVE-900. Keep pressing the 7 button of the B-bus select buttons until the IN point is passed, and program 1 will change to program 7, but the original setting, the change from program 1 to program 2, is retained.

1-21. CONTROL WITH A MICROCOMPUTER

When the SEG-2550A/2550AP is used with a microcomputer, the events memorized in E-File can be executed besides the function of downstream keyer. To control the E-File function, Q-Manager, the software of the SMC-70G/70GP, is necessary.

Connection example



1-22. CONTROL USING THE GPI CONNECTOR

The function of the TAKE button and the cut in and cut out function of the downstream keyer can be controlled by the equipment connected to the GPI connector.

- The execution can be initiated only by sending the trigger signal.

When the BVE-900 is used

For example, if the time to execute the effect is designated on the BVE-900, it is possible to automatically execute the effect or to insert or delete the characters with the downstream keyer.

- When the effect is executed by the equipment connected to the GPI connector, the execution is delayed by one frame.

1-23. ADJUSTING SWITCHES AND VOLUMES INSIDE THE UNIT

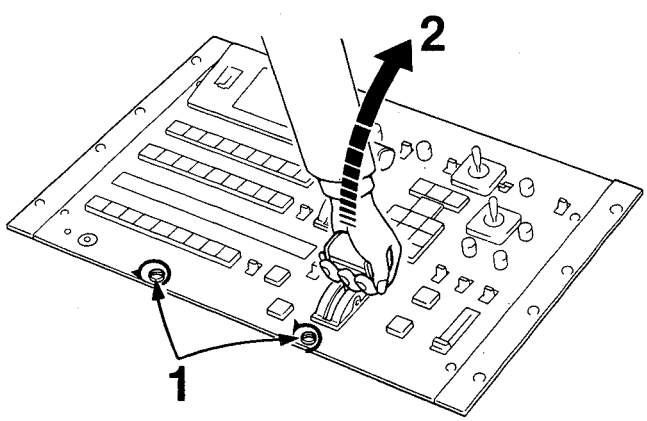
The switches and volumes inside the unit adjust the items which do not require the usual adjustments. The items to be adjusted are as follows :

SC and H phases
Burst and sync signal level of program and preset signals
White and black level of background
Mask of downstream keyer and external key
Height/width ratio of wipe pattern
The number of lines for pairing wipe
Circularity and horizontal and vertical ratio of the round wipe
Selection whether the corners of wipe pattern is rounded or not
Video and setup level of program and preset output signals
Intercom level of intercom 5 - 8
Sidetone level of intercom 1 - 8
Balance of the setup level between A bus and B bus signals
Selection whether the burst and sync signal is replaced or not

- Adjust each volume by turning it with a small screwdriver.

1-23-1. HOW TO OPEN AND CLOSE THE CONTROL PANEL

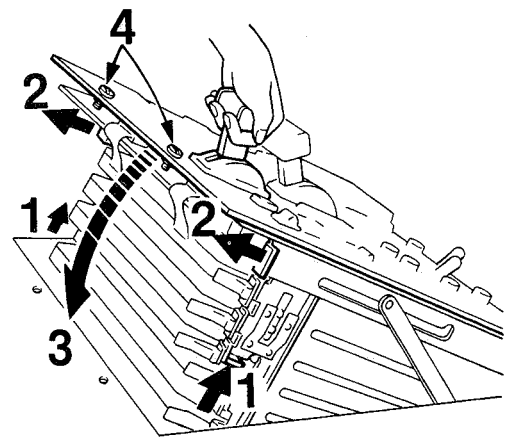
How to open the panel



1 Loosen two screws.

2 Pull up the panel by holding the lever until it locks.

How to close the panel



1 Check that the board stoppers on both sides are locked (they should be placed at the upper position).

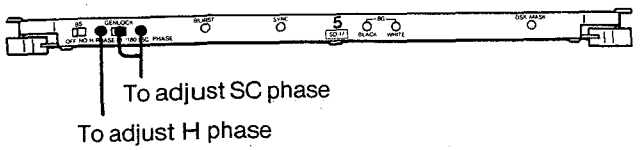
2 While holding the panel, pull the release levers on both sides to release the lock.
Be sure to hold the panel firmly, or your fingers may be catched between the side panel and the control panel.

3 Close the panel by holding the lever.

4 Fasten two screws.

1-23-2. ADJUSTING THE SC AND H PHASES

When the SEG-2550A/2550AP operates synchronizing with an external sync signal, the phases of sync signal and subcarrier of the signals supplied from the PGM OUT connector on the SEG-2550A/2550AP should be adjusted to the phases of the external sync signal by the volumes on the 5 SD-17 board. Adjust the phase by monitoring the indication on the preset monitor.



1 Connect the external sync signal to the GEN LOCK IN connector and to one of the VIDEO IN 1 through 8 connectors.

2 Set the PGM/PST selector to PGM.

3 Press the PST select button corresponding to the connector to which the external sync signal is connected.

4 Set the INDICATION selector on the control panel to PHASE.
The indication for adjusting phases appear on the preset monitor.

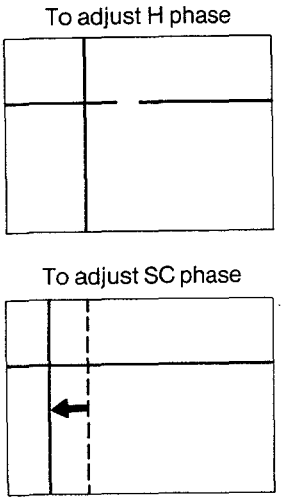


Figure 27 **Phase indication**

5 Adjust the H phase by turning the H.PHASE volume so that the left and right horizontal lines appear together.

6 Adjust the subcarrier phase by the SC 0°/180° selector and SC.PHASE volume.
Set the switch to the appropriate position, then turn the volume so that the right line moves to the left to become one line with the left line.
(For details, refer to "ADJUSTMENTS OF CONNECTED EQUIPMENT.")

- When the adjustment completes, set the INDICATION selector to OFF.

1-23-3. ADJUSTING THE SC-H PHASE RELATION

To adjust the SC-H phase relation with high precision (adjustment of color framing), proceed as follows using the equipment which can set the SC-H phase relation.

When the SEG-2550A/2550AP operates with an external sync signal

1 Adjust the H phase and SC phase with the procedure mentioned above.

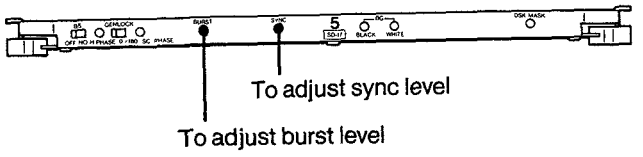
2 While observing the SC-H phase measuring equipment, turn the H. PHASE volume to adjust the SC-H phase relations precisely.

If more precise adjustment of the SC-H phase relation is required, set a switch on the SD-17 board so that the black burst signal generated by an external sync signal generator which is connected to the VIDEO IN connector, is supplied from the PGM OUT and PST OUT connectors.

When the SEG-2550A/2550AP is used with no external sync signal supplied
The SC-H phase relation of the built-in sync signal generator can also be adjusted. In this case, adjust it with the SC PHASE volume instead of the H. PHASE volume in the above procedure. In the internal sync mode, the phase may be shifted with the temperature inside the unit raised.

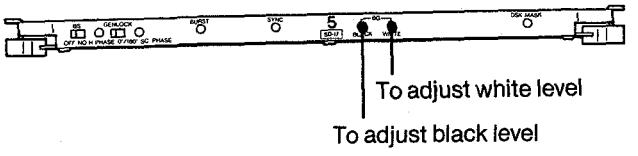
1-23-4. ADJUSTING BURST AND SYNC SIGNAL LEVELS

With the BURST and SYNC volumes on the 5 SD-17 board, the burst and sync signal level of program and preset output signal can be adjusted.
To adjust the level, be sure to monitor the program output signal on a waveform monitor.



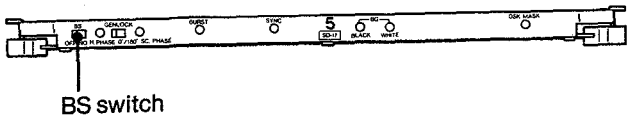
1-23-5. ADJUSTING WHITE AND BLACK LEVELS OF BACKGROUND

When the WHT (white) or BLK (black) is selected as background, the white and black level can be adjusted by the BG volumes on the 5 SD-17 board.



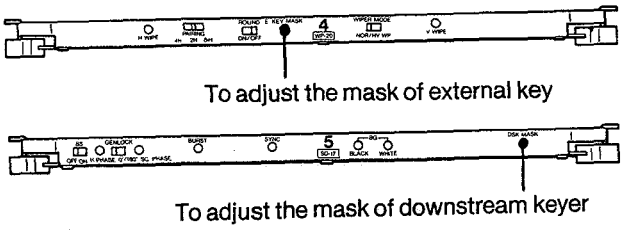
1-23-6. REPLACING THE BURST AND SYNC SIGNALS

The burst and sync signals of the input signal are normally replaced with the signals generated by the sync signal generator built in the SEG-2550A/2550AP. When the BS switch on the SD-17 board is set to OFF, the signals are not replaced, and the input signals are output as they are.



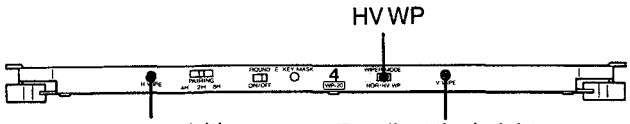
1-23-7. MASK OF DOWNSTREAM KEYER AND EXTERNAL KEY

When the black letter on the white paper is used as a key signal source for the downstream keyer or external key, the edge of the horizontal and vertical blanking pulses may appear on the screen on some black and white cameras. In such a case, turn the volume to change the masking value so that the pulse disappears from the screen.
Adjust the mask of downstream keyer by the DSK MASK volume on the 5 SD-17 board, and adjust the mask of external key by the E.KEY MASK volume on the 4 WF-20 board.
In normal operation, this adjustment is not required.

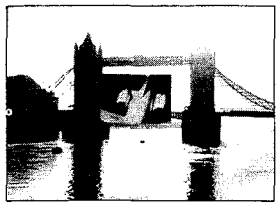


1-23-8. ADJUSTING THE HEIGHT/WIDTH RATIO OF THE WIPE PATTERN

The ratio of the height to the width of the wipe pattern can be adjusted with the H WIPE volume and the V WIPE volume on the 4 WF-20 board. Only the ratio of the pattern with the pattern code whose left most digit is 0 (for example 001) can be adjusted.



Standard pattern



Pattern with the width changed

Pattern with the height changed

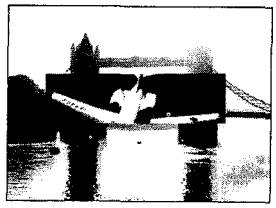


Figure 28 Adjusting the height/width ratio of wipe patterns

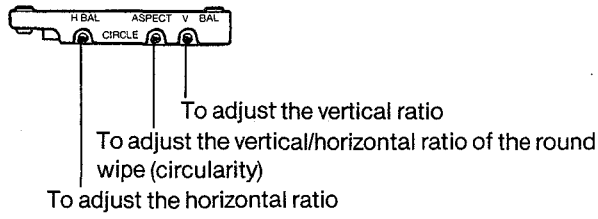
1 Set the WIPER MODE selector to HV WP.

2 Turn the H WIPE volume to adjust the width of the pattern, or turn the V WIPE volume to adjust the height of the pattern.

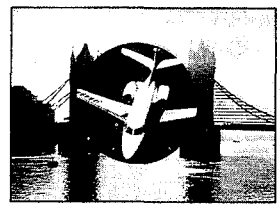
- When the WIPER MODE switch is returned to NOR, the standard ratio can be obtained.
- When the height/width ratio of the wipe pattern is extremely changed from the standard, the screen may not be wiped completely.

1-23-9. ADJUSTING THE ROUND WIPE

The circularity and the vertical and horizontal ratio of the round wipe (pattern code 103) can be adjusted. Turn the H BAL, ASPECT, V BAL volumes on the WP-21 board.



Standard pattern



Pattern adjusted the vertical ratio

Pattern adjusted the horizontal ratio

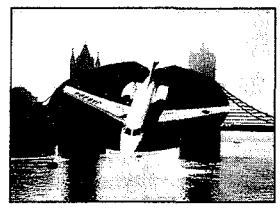


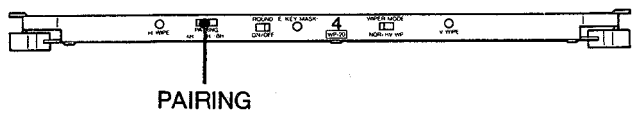
Figure 29 Adjusting the vertical and horizontal ration of the round wipe

- For pairing and echo wipes, the adjustment of the round wipe is not possible.

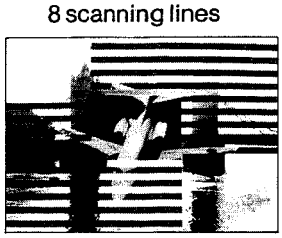
1-23-10. SELECTION OF THE NUMBER OF LINES FOR PAIRING WIPE

The line width of pairing wipe can be selected by designating the number of lines with the PAIRING switch on the 4 WF-20 board as follows :

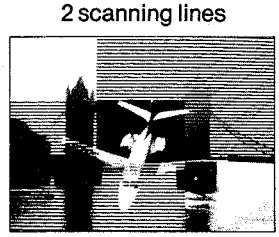
4H : for 4 scanning lines
2H : for 2 scanning lines
8H : for 8 scanning lines



8 scanning lines



2 scanning lines



4 scanning lines

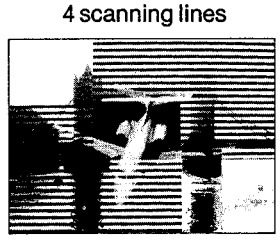
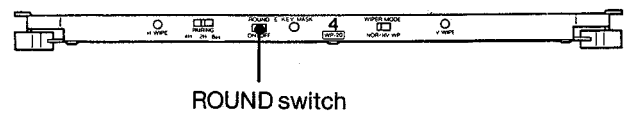


Figure 30 **Line width for pairing wipe**

1-23-11. ROUNDING THE CORNERS OF THE WIPE-PATTERNS

The corners of the wipe pattern are rounded.
Set the ROUND switch on the 4 WF-20 board to ON.



Standard wipe

Rounded wipe

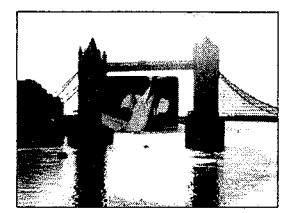
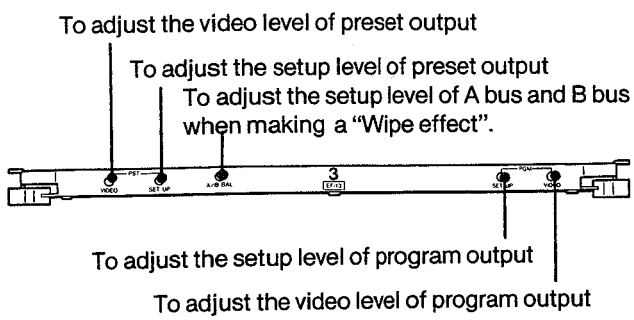


Figure 31 **Round wipe**

- The rounded wipe is valid with some patterns.

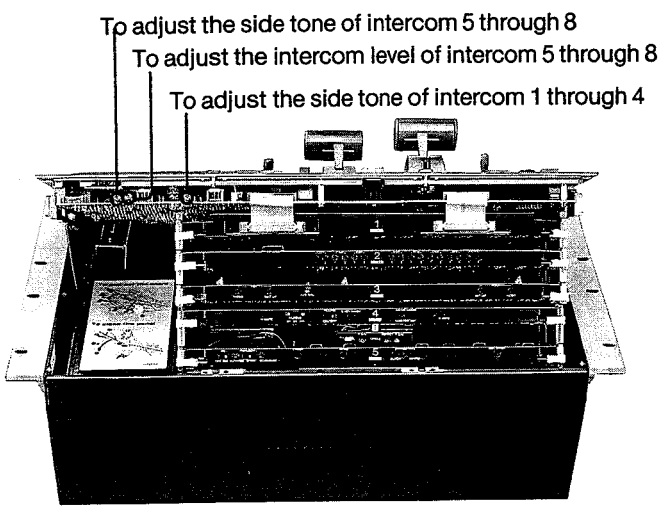
1-23-12. ADJUSTING
—THE VIDEO AND SETUP LEVEL OF OUTPUT SIGNALS
—THE SETUP LEVEL OF THE A BUS AND THE B BUS

- The video and setup level of signals output from the PST OUT and PGM OUT connectors can be adjusted. While monitoring the waveform on the waveform monitor, adjust the level by the PST VIDEO, PST SETUP, PGM VIDEO and PGM SETUP volumes on the 3 EF-13 board.
- The setup level of the A bus and the B bus, when making a "Wipe effect", can be adjusted and equalized with the A/B BAL volume on the same board. While monitoring their waveforms, turn the control so that the waveforms coincide.


To adjust the video level of preset output
To adjust the setup level of preset output
To adjust the setup level of A bus and B bus when making a "Wipe effect".
To adjust the setup level of program output
To adjust the video level of program output

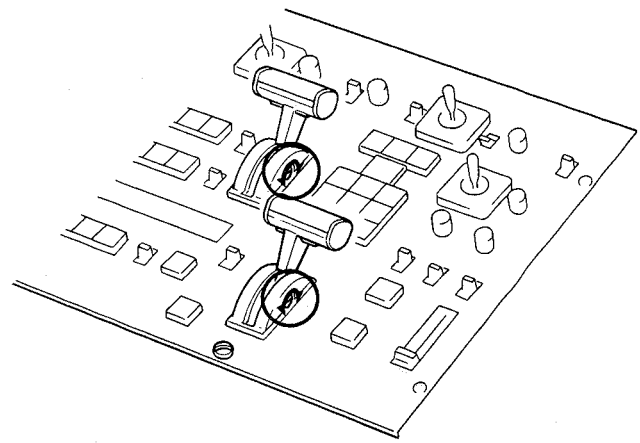
1-23-13. ADJUSTING THE INTERCOM AND SIDE TONE LEVELS

The intercom level of intercom 5 through 8 and the side tone level of intercom 1 through 8 can be adjusted with the volumes placed below the control panel.


To adjust the side tone of intercom 5 through 8
To adjust the intercom level of intercom 5 through 8
To adjust the side tone of intercom 1 through 4

1-24. ADJUSTING THE TORQUE OF LEVERS

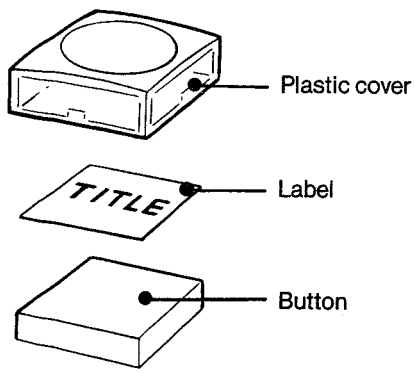
The torque of the PGM/PST MIX and EFF levers can be adjusted. Adjust the TORQUE screw on the right side at the base of the lever with a screwdriver.



1-25. USING THE SUPPLIED LABEL AND SEAL

1-25-1. HOW TO USE THE LABEL

On the buttons to select a picture, labels indicating the video signal sources (supplied) can be attached as follows.



1 Remove the plastic cover on the button.

2 Put the label (supplied) on top of the button.

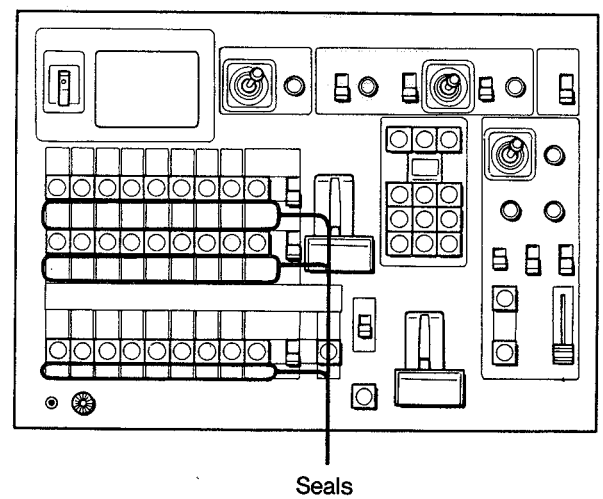
3 Replace the plastic cover.

- Transparent labels are also supplied. Write the signal sources on the labels, and attach them on the buttons.

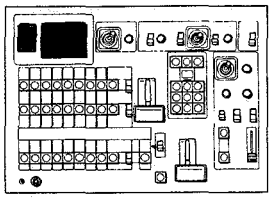
1-25-2. HOW TO USE THE SEAL

Affix the supplied seals below the bus select buttons. The signal sources can easily be written in with a water-soluble felt-tipped pen and then erased.

- An oil-based felt-tipped pen can also be used. In this case, erase the written letters with alcohol.

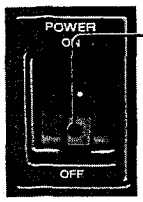


1-26. LOCATION AND FUNCTION OF PARTS AND CONTROLS



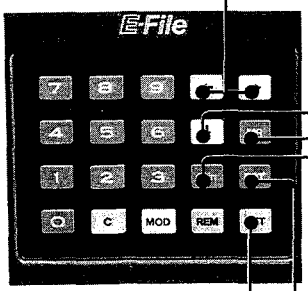
1-26-1. CONTROL PANEL

[1] POWER switch



The power of the SEG-2550A/2550AP is turned on and off. To turn the power on, press the ON side, and to turn off, press the OFF side.

[2] E-File section



←, →(event number select) keys
Press to shift the event number displayed on the display monitor. Place the event number for memorizing or recalling the data at the center.

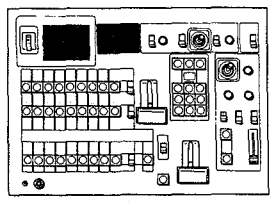
↓(page change) key
One event is composed of three pages. To view the page not displayed, press this key. Every time this key is pressed, the displayed page changes by one.

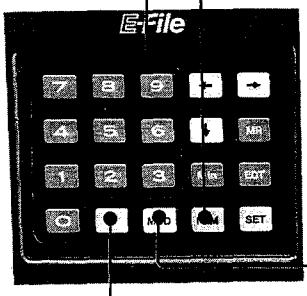
MR (memory read) key
Press to recall the memorized data. Place the event number to be recalled at the center of the display, and press this key.

Min (memory input) key
Press to memorize the setting of buttons and switches, and the movement of the levers and sticks in the E-File. Place the event number in which the data is to be memorized at the center, and press this key.

EDT key
Use for the operation of the BVE-900 linking with the E-File of the SEG-2550A/2550AP.
After recalling and executing the event, press this key so that the remote mode can be obtained with the recalled event remained effective.

SET key
Use for the E-File operation.





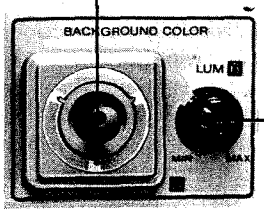
Number keys
Designate the sticks, levers and controls used for the transition and set to change the settings of the items of the mode.

REM (remote) key
When the SEG-2550A/2550AP is controlled with external equipment such as a microcomputer or a BVE-900 editing control unit, press this key. The SEG-2550A/2550AP is set in the remote control mode, and the control mode is shown on the display monitor.

MOD (mode) key
Press this key to display the mode menu. Erasing data, turning the buzzer on and off, auto increment of an event number, and auto take of an event can be set.

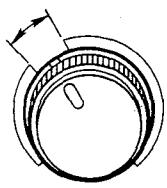
C (clear) key
Press in the following cases.
- To display the E-File data after the power is turned on, press once.
- To display the E-File data by interrupting or terminating the current mode, press once.
- To interrupt the execution of an event, press once.
- To terminate the recall mode of events, press twice.

3 BACKGROUND COLOR section

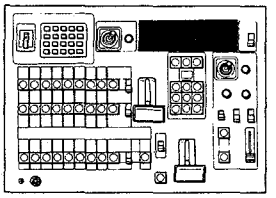


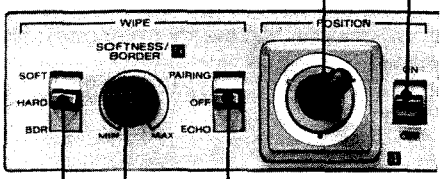
BACKGROUND COLOR stick
Adjusts the hue of the background color by rotating and the chroma level by tilting.
This stick is activated when the BACKGROUND button of the PST bus, A bus or B bus select button is pressed, and the BACKGROUND selector is set to COL.

LUM (luminance) control
Adjusts the brightness of the background color. Clockwise rotation brightens the color. Usually set the control within the range as shown below. If the control is set outside the indicated range, it is recommended to monitor the signal by a waveform monitor.



[4] Wipe effect section





POSITION stick
Adjusts the center of the wipe pattern on the screen when the POSITION switch is set to ON. The position can be adjusted only with simple circle or rectangle patterns. For details, refer to "TABLE OF WIPE PATTERNS".

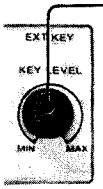
POSITION switch
Activates the POSITION stick operation.
ON : The POSITION stick operation is activated, and the *center of the wipe pattern can be adjusted.*
OFF : The pattern is placed at the center of the screen regardless of the POSITION stick setting.

PAIRING/ECHO selector
Adds the pairing or echo effects to the selected wipe pattern.
PAIRING : A stripe pattern wipes the picture from both sides *in pairs : Odd lines wipe from one side, and even lines* from the other.
OFF : Neither the pairing nor echo wipe is used. The picture is wiped by a standard pattern.
ECHO : At the edge of the wipe pattern, new picture is wiped in several steps of gradation on the original picture as echoed.

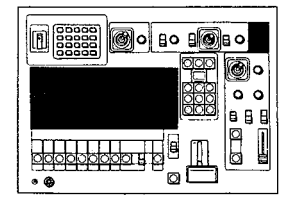
SOFTNESS/BORDER control
Adjusts the softness of the edge of the wipe pattern when the SOFT/HARD/BDR selector is set to SOFT. When the selector is set to BDR, adjusts the width of the border of the wipe pattern.

SOFT/HARD/BDR selector
Select the edge of the wipe pattern.
SOFT : For a soft edge of wipe pattern. The softness is *controlled by the SOFTNESS/BORDER control.*
HARD : For a sharp edge of a wipe pattern.
BDR : To add a border to a wipe pattern. The width of the border is adjusted by the SOFTNESS/BORDER control, and the color is adjusted by the BACKGROUND COLOR stick and LUM control. The color is the complementary color of the indication.

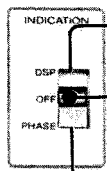
[5] EXT KEY LEVEL control



Adjusts the key level of the key signal connected to the EXT KEY connector. Turn the control so that the pattern cut by the key signal will be clear.



[6] INDICATION selector



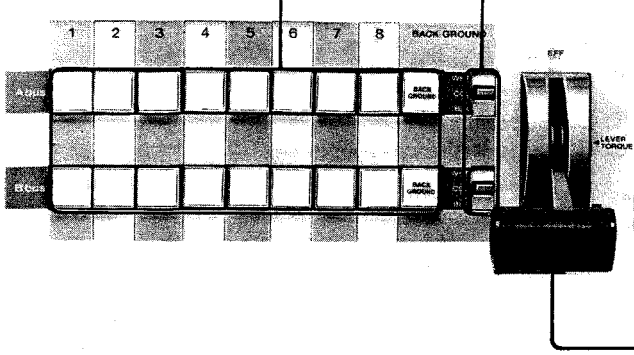
Selects what is displayed on the preset monitor.

DSP : The data of the E-File are displayed together with the picture selected by the PST bus select button.

OFF : The picture selected by the PST bus select button is displayed. In normal operation, use this position.

PHASE : For SC and H phase adjustment betweeen the SEG output signal and the external sync signal. When the PGM/PST selector is set to PGM, the phase indication pattern will appear on the preset monitor screen. Use this patten as a guide for phase adjustment.

[7] A bus/B bus select section



A bus/B bus select buttons

Select the pictures used for wipe, mixing and external key. Pictures can be selected by A bus select buttons and B bus select buttons separately.

On the monitor screen, the picture selected by the bus to which the EFF lever is positioned is displayed.

The buttons 1 through 8 correspond to the VIDEO IN 1 through 8 connectors on the connector panel. When a button is pressed, the picture connected to the corresponding connector is selected.

When the BACKGROUND button is pressed, the signal generated by the built-in background color generator is output. The color of the background is adjusted by the BACKGROUND selector and the BACKGROUND COLOR stick and LUM control.

BACKGROUND selectors

Selects the background when the BACKGROUND button of the A bus or B bus select buttons is pressed.

WHT : White background

COL : Color background selected by the BACKGROUND COLOR stick

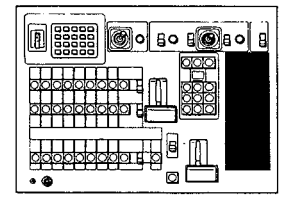
BLK : Black background

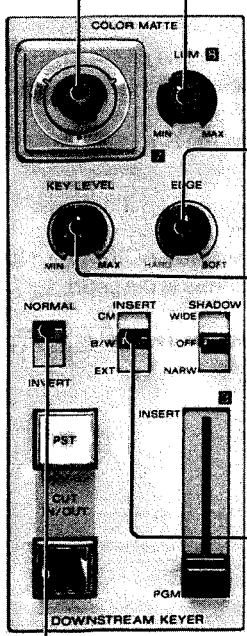
EFF (effect) lever

The A bus picture is gradually replaced with the B bus picture, or vice versa when the MIX or WIPE button is engaged. When the lever is moved to the uppermost position, the A bus picture will be obtained, and when the lever is moved to the lowermost position, the B bus picture will be obtained.

The torque of the lever can be adjusted. For details, refer to "ADJUSTING THE TORQUE OF THE LEVERS".

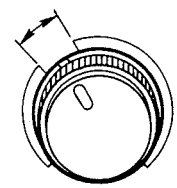
[8] DOWNSTREAM KEYER section





COLOR MATTE stick
Adjust the color of the letters or figures inserted with the downstream keyer. The hue is adjusted by rotating the stick and the chroma level is adjusted by tilting the stick.
This stick is effective when the INSERT selector is set to CM.

LUM (luminace) control
Adjusts the brightness of the color selected by the COLOR MATTE stick. Clockwise rotation brightens the color.
Usually, set the control within the range as shown below. If the control is to set outside the range, it is recommended to monitor the signal with a waveform monitor.

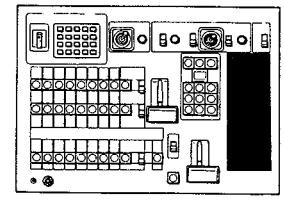


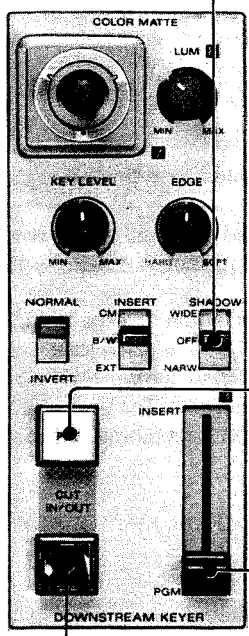
EDGE control
The edge of the letters and figures inserted with the downstream keyer is adjusted.

KEY LEVEL control
Adjusts the downstream keying level.

INSERT selector
CM : To color the inserted letters and figures with the built-in color matt generator. The color is selected by the COLOR MATTE stick and LUM control.
B/W : The inserted letters and figures will be monochrome.
EXT : When the letters from the SMC-70G/70GP microcomputer are inserted, the color supplied by the computer is used.

NORMAL/INVERT selector
NORMAL : When keying black letters against a white background.
INVERT : When keying white letters against a black background.





SHADOW selector

WIDE : To produce a wide shadow to the downstream keying signal.

OFF : No shadow

NARROW : To produce a narrow shadow to the downstream keying signal.

- When the letters are inserted by a microcomputer, the shadow is not added.

PST CUT IN/OUT button

Press to cut in or cut out the keying signal on the picture on the preset monitor to check the downstream keying. The button lights when the letters are inserted. When the button is pressed again, the letters disappear and the button light goes out.

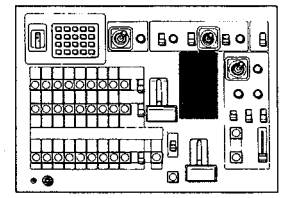
INSERT lever

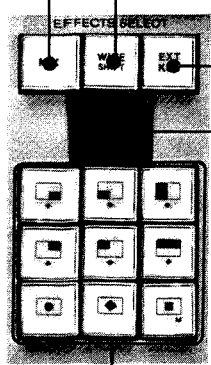
Move the lever to INSERT position to gradually insert the letters to the program picture and move the lever to PGM position to remove the letters. At the PGM position no letter will appear. When the letters are inserted, the PGM CUT IN/OUT button lights.

PGM CUT IN/OUT button

Press to cut in or cut out the letters to the program picture. The button lights when the letters are inserted.

[9] EFFECTS SELECT section





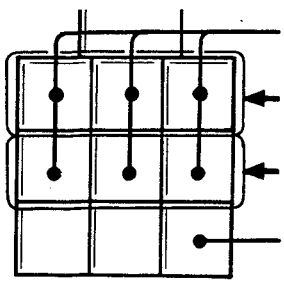
MIX (mixing) button
Press to mix the A bus and B bus pictures with the EFF lever. The button will light.

WIPE/SHIFT button
Press to wipe the A bus picture with the B bus picture or vice versa with the EFF lever.
When this button is pressed once, the button and the upper left button light and the wipe pattern is selected by the wipe pattern select buttons.
When the button is pressed again, the figures appear on the pattern code indication window, and the lower right M button starts blinking. In this condition, the wipe pattern is selected by the pattern code of three digits. The upper two-row buttons of the wipe pattern select buttons function to designate the pattern code.

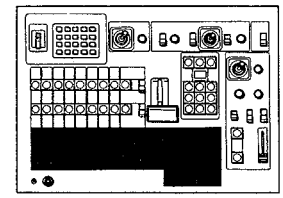
EXT KEY (external key) button
Press to key the A bus and B bus pictures using the input signal from the EXT KEY connector. The button will light.

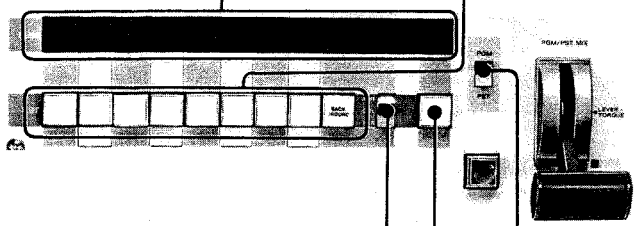
Pattern code indication window
When the wipe pattern is designated by the pattern code, the code number is displayed here. Display the code number by pressing the WIPE/SHIFT button, and designate the pattern code.

Wipe pattern select buttons
Press to select the wipe pattern to be used. There are two methods to select a wipe pattern. One is to select the pattern by pressing the appropriate button, and the pattern printed on the button is selected.
The other is to select the pattern by designating the pattern code of three digits. Set the figures in the pattern code indication window by pressing the upper two-row buttons, then press the M button. And the pattern whose pattern code is displayed in the window is selected. As for the pattern code, refer to "TABLE OF WIPE PATTERNS".
The above two methods are cyclically changed every time the WIPE/SHIFT button is pressed.



[10] PGM/PST select section





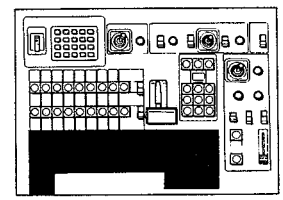
PGM (program) indicator
The number of the picture which is supplied from the PGM OUT connector (program picture) lights. The program picture is selected by the PST bus select buttons.
When the BACKGROUND button is pressed, the setting of the BACKGROUND switch is indicated: When the EFF button is pressed, the EFFECTS indicator lights while the designated effect is being executed.

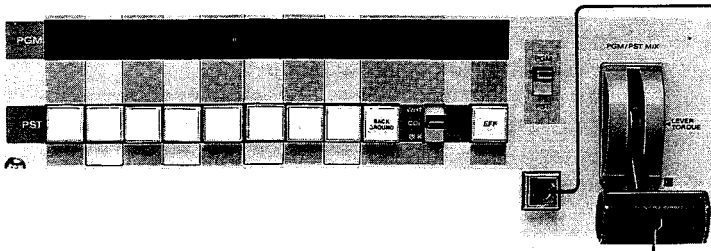
PST (preset) bus select buttons
Select the output signal from the PGM and PST OUT connectors when the PGM/PST selector is set to PGM. The pressed button and the corresponding PGM indicator light. When the selector is set to PST, select the output signal from the PST OUT connectors. The pressed button lights.
The buttons 1 through 8 correspond to the VIDEO IN 1 through 8 connectors on the connector panel. When a button is pressed, the picture connected to the corresponding connector is selected.
When the BACKGROUND button is pressed, the signal generated by the built-in background color generator is selected. The color of the background is adjusted by the BACKGROUND selector and the BACKGROUND COLOR stick and LUM control.

PGM/PST selector
PGM : The output signals from the PGM OUT and PST OUT connectors are simultaneously selected by the PST bus select buttons.
PST : The output signal from the PST OUT connectors is selected by the PST bus select buttons.

EFF button
Press to use the effect selected by the EFFECTS SELECT buttons.

BACKGROUND selector
Selects the background color when the BACKGROUND button of the PST bus select buttons is pressed.
WHT : White background
COL : Color background selected by the BACKGROUND COLOR stick
BLK : Black background

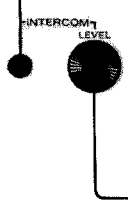




TAKE button
Instantaneously switches the preset picture and program picture. This button also functions as the trigger of the E-File operation.
Normally the button is not lit. While the E-File is controlled in the remote mode, the button is lit. The blinking of this button indicates the standby mode of the E-File operation, and in this mode, the control panel of the SEG-2550A/2550AP cannot be activated.

PGM/PST MIX lever
The program picture is gradually replaced with the preset picture when the PGM/PST selector is set to PST.
This lever is used for mixing of the pictures selected by the PST select buttons. The position of the lever is not assigned to either the program or preset picture. The pictures will be interchanged each time the lever is move from one position to the other.
The torque of the lever can be adjusted. For details, refer to "ADJUSTING THE TORQUE OF LEVERS".

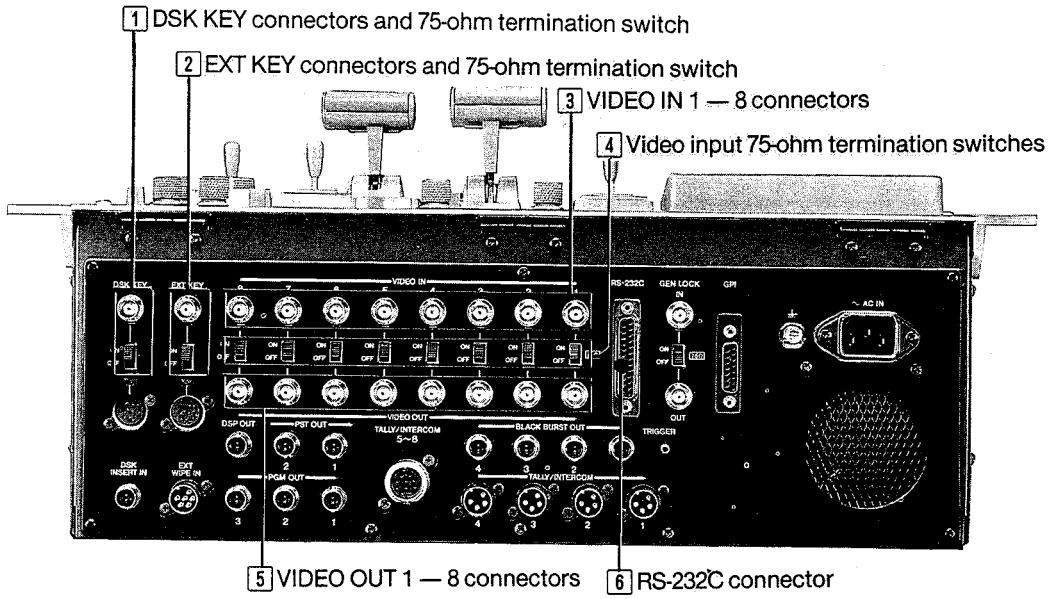
[11] INTERCOM section



INTERCOM jack (minijack)
Connect the Sony DR-100 intercom headset (optional) here to allow communication between the SEG-2550A/2550AP and the equipment connected to the TALLY/INTERCOM connectors. The mixed intercom sound of intercom 1 through 4 and 5 through 8 can be heard.

LEVEL control
Adjusts the sound level received from the equipment connected to the TALLY/INTERCOM 1 through 4 connectors. The intercom level of intercom 5 through 8 is adjusted by the volume inside the unit.

1-26-2. CONNECTOR PANEL


1 DSK KEY connectors and 75-ohm termination switch
2 EXT KEY connectors and 75-ohm termination switch
3 VIDEO IN 1 — 8 connectors
4 Video input 75-ohm termination switches
5 VIDEO OUT 1 — 8 connectors
6 RS-232C connector

1 DSK KEY (downstream keyer) connectors (BNC type, DIN 6-pin) and 75-ohm termination switch
Connect a video signal for downstream keyer operation. Connect either a black and white video camera to the DIN 6-pin connector or a video signal synchronized with the SEG-2550A/2550AP such as the signal from the SMC-70G/70GP micro computer to the BNC connector, and set the 75-ohm termination switch to ON.
The video signal connected to the DIN 6-pin connector can be monitored by connecting a video monitor to the BNC connector. In this case, set the 75-ohm termination switch to OFF.

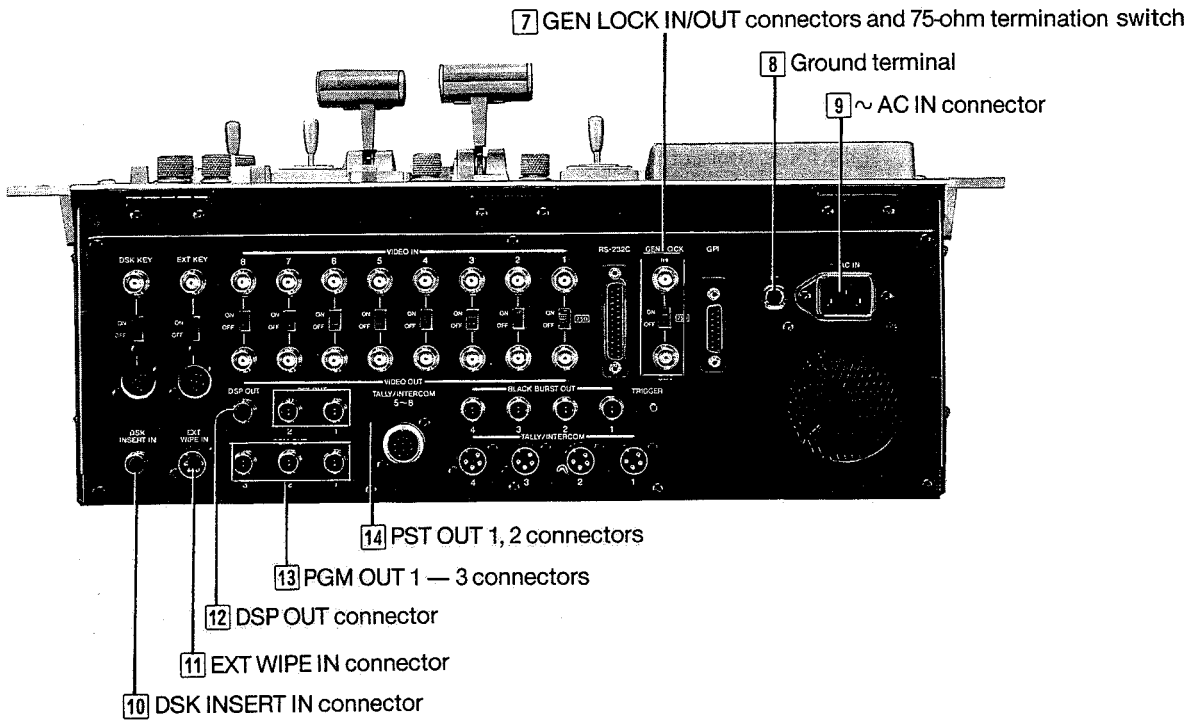
2 EXT KEY (external key) connectors (BNC type, DIN 6-pin) and 75-ohm termination switch
Connect a video signal for external key operation. Connect either a black and white video camera to the DIN 6-pin connector or a video signal synchronized with the SEG-2550A/2550AP to the BNC connector, and set the 75-ohm termination switch to ON.
The video signal connected to the DIN 6-pin connector can be monitored by connecting a video monitor to the BNC connector. In this case, set the 75-ohm termination switch to OFF.

3 VIDEO IN 1 — 8 connectors (BNC type)
Connect video signals from video cameras, VTRs which are connected to time base correctors, etc. The connected signals should be synchronized with the SEG-2550A/2550AP.

4 Video input 75-ohm termination switches
These are the termination switches connected to the VIDEO IN 1 — 8 connectors. Normally set to ON.
When any of the VIDEO OUT 1 — 8 connectors is used, set the corresponding switch to OFF.

5 VIDEO OUT 1 — 8 connectors (BNC type)
The video signals connected to the above VIDEO IN connectors are fed out from these connectors (loop-through output). Connect to the video input connectors on a video monitor to monitor the video signal connected to the VIDEO IN connector directly.
When these connectors are used, be sure to set the corresponding 75-ohm termination switches to OFF.
When they are not being used, set these switches to ON.

6 RS-232C connector (25-pin multi connector)
When the SEG-2550A/2550AP is controlled by external equipment such as a BVE-900 editing control unit connect control signals from the equipment. For details of the control signals, consult your authorized Sony dealer.


7 GEN LOCK IN/OUT connectors and 75-ohm termination switch
8 Ground terminal
9 ~ AC IN connector
14 PST OUT 1, 2 connectors
13 PGM OUT 1 — 3 connectors
12 DSP OUT connector
11 EXT WIPE IN connector
10 DSK INSERT IN connector

7 GEN LOCK IN/OUT (generator lock input/output) connectors (BNC type) and 75-ohm termination switch
Connect a reference VBS or black burst signal to the GEN LOCK IN connector to synchronize the SEG-2550A/2550AP with an external sync signal such as a house sync signal, etc. All equipment connected to the SEG will then be synchronized with this reference signal.
The reference signal connected to the GEN LOCK IN connector is fed out from the GEN LOCK OUT connector (loop-through output). Connect to the gen-lock input connector of the equipment which should be synchronized with the same reference signal. When the GEN LOCK OUT connector is used, be sure to set the 75-ohm termination switch to OFF. When it is not being used, set the switch to ON.

8 Ground terminal (⏚)
Connect to a good ground when required.

9 ~ AC IN connector
Connect the supplied ac power cord here.

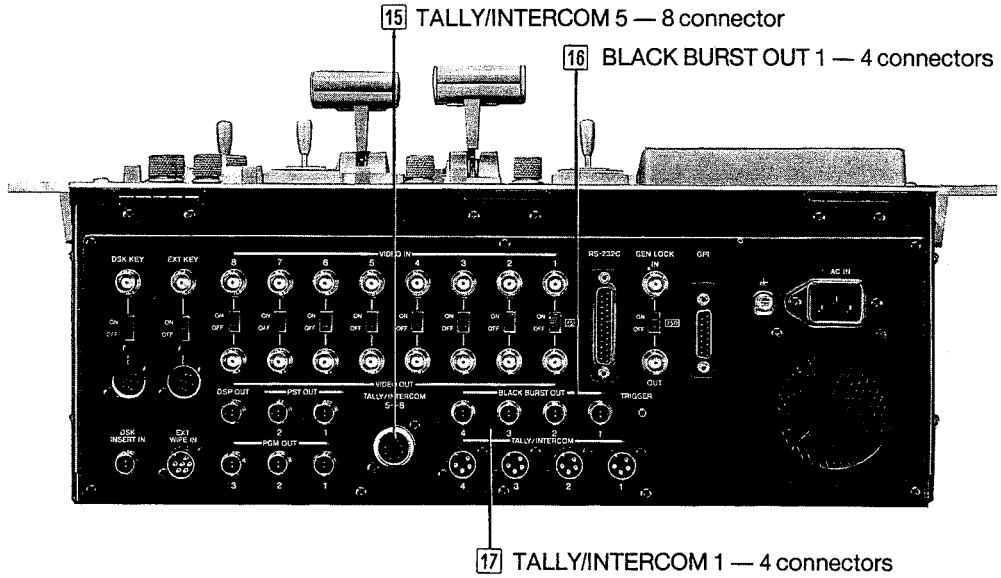
10 DSK INSERT IN (downstream keyer insert) connector (BNC type)
When the letters of the downstream keyer are inserted by the SMC-70G/70GP microcomputer, and the color supplied by the computer is used, connect the OUT connector of the SMI-7074 NTSC superimposer or the SMI-7074P PAL superimposer installed into the SMC-70G/70GP.

11 EXT WIPE IN (external wipe signal input) connector (DIN 6-pin)
Connect the optional Sony WEX-2000/2000P wipe pattern extender, etc.

12 DSP OUT (display output) connector (BNC type)
Connect to a video input connector of a black and white video monitor (display monitor) to monitor the data and information of the E-File.

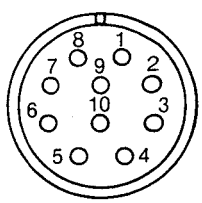
13 PGM OUT (program output) 1 — 3 connectors (BNC type)
Connect to the video input connectors of a video monitor, VTRs, etc. The signals of the program picture are output here.

14 PST OUT (preset output) 1, 2 connectors (BNC type)
Connect to the video input connectors on the preset monitors. The preset picture selected by the PST bus select buttons are output here.



15 TALLY/INTERCOM 5 — 8 connector (10 pin)

This is the tally/intercom connector for the equipment connected to the VIDEO IN 5 — 8 connectors.The pin assignment of this connector is as shown below. Make the cable using the supplied connector to fit the connector of the tally-intercom system connected here.



Pin No.	Signal
1	TALLY (5)
2	TALLY (6)
3	TALLY (7)
4	NC
5	NC
6	TALLY (8)
7	INCOM
8	INCOM (G)
9	TALLY (COMMON)
10	NC

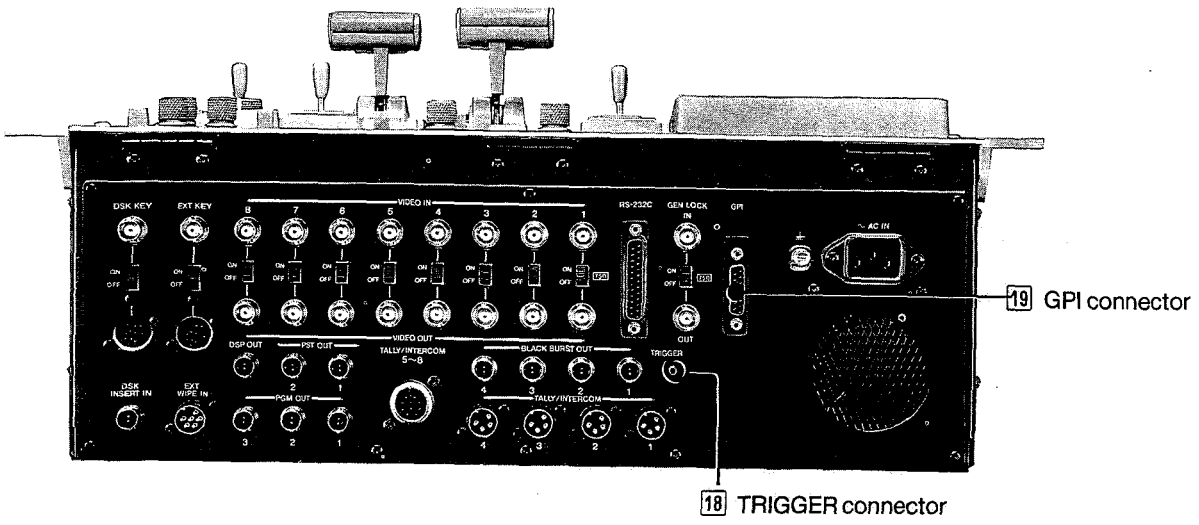
16 BLACK BURST OUT 1 — 4 connectors (BNC type)

Black burst (sync 0.3 V p-p, burst 0.3 V p-p) signals generated by the built-in sync generator are output here. Connect these outputs to the GEN LOCK IN connectors of the video equipment being used so that the equipment will be synchronized with the SEG-2550A/2550AP.
The same black burst signal is output at each connector in parallel. The 1 to 4 connectors are independent of the VIDEO IN connectors.

17 TALLY/INTERCOM 1 — 4 connectors (DIN 4-pin)

These are the connectors for the tally/intercom of the equipment connected to the VIDEO IN 1 — 4 connectors. Connect to the tally/intercom connector of a camera or a camera control unit using a CCDD cable. When a headset is connected to the INTERCOM connector on the control panel, the communication between the SEG and the camera operators is possible.
The TALLY/INTERCOM 1 to 4 connectors correspond to the VIDEO IN 1 to 4 connectors.

- The tally circuit incorporates a relay with a maximum pickup value of 24 V, 200 mA DC.

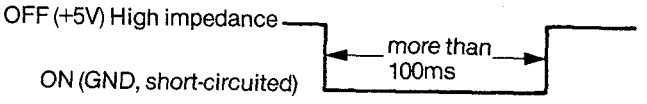


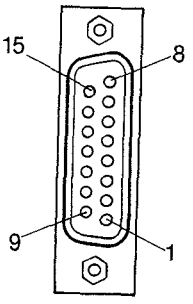
18 TRIGGER connector (special minijack)

This is the connector to trigger the E-File operation by an external equipment. Connect to the control connector for tape on the SMC-70G/70GP microcomputer.
When the control signal generated by the Q-Manager of the SMC-70G/70GP, the same function as the TAKE button pressed can be obtained.

19 GPI connector (15 pin)

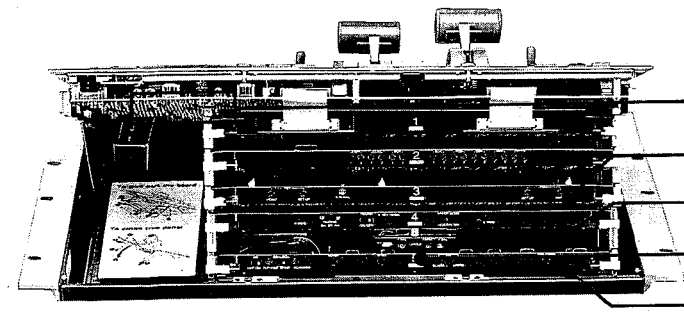
This is a connector to trigger the TAKE button function and the cut in and cut out function of the downstream keyer with external equipment. Using this connector, the MR and Min operations of the E-File can be remotely controlled.
The signal required for this connector is the same as that of the TRIGGER connector, and the following conditions should be satisfied.



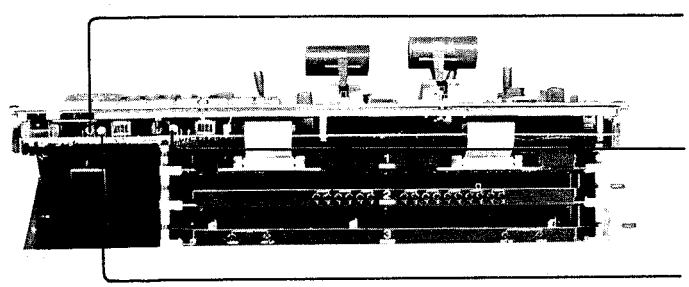


Pin No.	Signals
1	TAKE
2	TAKE (GND)
3	DSK CUT IN/OUT
4	DSK CUT IN/OUT (GND)
5—15	NC

1-26-3. INSIDE THE UNIT



Beneath the control panel



Tally/intercome 5 — 8 side tone control
Adjusts the side tone of the tally/intercom 5 to 8.

Tally/intercome 1 — 4 side tone control
Adjusts the side tone of the tally/intercom 1 to 4.

Tally/intercome 5 — 8 level control
Adjusts the level of the tally/intercom 5 to 8.

3EF-13 board

PST VIDEO (preset video level) control volume
Adjusts the video level of the output signal from the PST OUT connectors.

PST SET UP (preset set up level) control volume
Adjusts the set up level of the output signal from the PST OUT connectors.

A/B BAL (balance) control volume
Adjusts and equalizes the setup level of the A bus and the B bus when making a "Wipe effect".

PGM SET UP (program set up level) control volume
Adjusts the set up level of the output signal from the PGM OUT connectors.

PGM VIDEO (program video level) control volume
Adjusts the video level of the output signal from the PGM OUT connectors.

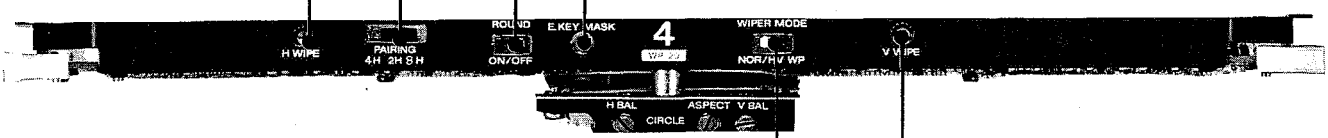
4 WP-20 board

H WIPE (width of wipe pattern) volume
When the WIPER MODE selector is set to HV WP, the horizontal length of the wipe pattern is changed.

PAIRING selector
Select the line width of pairing wipe by designating the number of the scanning lines.
4H : 4 scanning lines
2H : 2 scanning lines
8H : 8 scanning lines

ROUND switch
ON : Corners of the wipe pattern will be rounded.
OFF : Standard wipe pattern is obtained.

E. KEY MASK (external key mask) control volume
During the external key operation, mask the blanking pulse of the black and white camera connected to the EXT KEY connector if it appears.

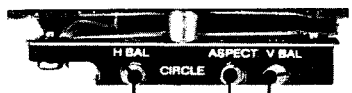


WIPER MODE selector
NOR : The pattern of the standard width/height ratio is obtained.
HV WP : The width/height ratio of the wipe pattern can be changed. Adjust the ratio by the H WIPE and V WIPE volumes.

Note
When the wipe pattern is extremely changed from the standard, the screen may not be wiped completely.

V WIPE (height of wipe pattern) control volume
When the WIPER MODE selector is set to HV WP, the vertical length of the wipe pattern is changed.

WP-21 board



V BAL (vertial balance) control volume
The vertical balance of the round wipe is adjusted.

ASPECT control volume
The circularity (vertical/horizontal ratio) of the round wipe is adjusted.

H BAL (horizontal balance) control volume
The horizontal balance of the round wipe is adjusted.

5 SD-17 board

BS switch
Selects the burst and sync signals of the output signals from the PGM OUT and PST OUT connectors.
OFF : The burst and sync signals of the input signal are output as they are.
ON : The burst and sync signals of the input signal are replaced with the signals generated by the sync signal generator built-in the unit, and are output.

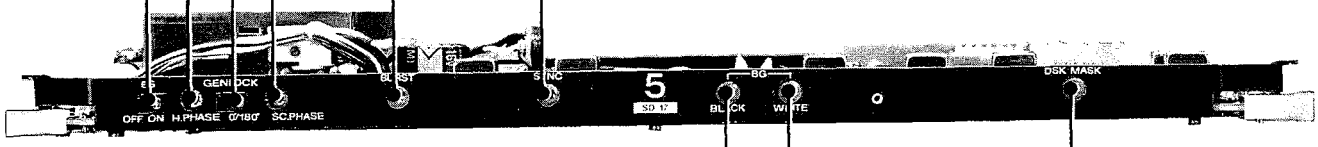
H.PHASE (horizontal phase) control volume
Adjusts the phases of the horizontal sync signal of the gen-lock reference signal and the output signal of the SEG-2550A/2550AP.

GEN LOCK select switch
This switch roughly adjusts the subcarrier phase of the PGM output signal to the subcarrier phase of the gen-lock reference signal.

SC.PHASE (subcarrier phase) control volume
Adjusts the SC phase of the PGM output signal to the subcarrier phase of the gen-lock reference signal precisely. After adjusting the phase roughly by the GEN LOCK switch, adjust this volume.

BURST (burst level) control volume
Adjusts the burst level of the output signals from the PGM OUT and PST OUT connectors.

SYNC (sync signal level) control volume
Adjusts the sync signal level of the output signals from the PGM OUT and PST OUT connectors.



BG BLACK (background black level) control volume
Adjusts the black level when the BLK is selected as background.

BG WHITE (background white level) control volume
Adjusts the white level when the WHT is selected as background.

DSK MASK (downstream keyer mask) control volume
During the downstream keyer operation, masks the blanking pulse of the black and white camera connected to the DSK KEY connector if it appears.

1-27. TABLE OF WIPE PATTERNS

Wipe No.	000	001	002	006	010	011	012	016	020	021	022	023
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	*	*	*	*	*	*	*	*	*	*	*	*
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	026	030	031	032	040	041	042	043	044	045	046	047
Position	—	—	—	—	—	—	*	—	—	—	—	—
Pairing	—	—	—	—	—	—	—	—	—	—	—	—
Echo	—	—	—	—	—	—	—	—	—	—	—	—
Bord/Soft	—	—	—	—	—	—	—	—	—	—	—	—

Wipe No.	050	051	052	053	054	055	056	057	060	067	070	101
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	*	*	*	*	*	*	*	*	*	*	*	*
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	102	103	104	105	106	107	111	112	113	114	115	117
Position	—	*	—	—	—	—	—	—	—	—	—	—
Pairing	*	*	*	*	*	*	*	*	*	*	*	*
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	121	122	124	125	131	133	134	135	136	140	141	142
Position	—	—	—	—	—	—	*	—	—	—	—	—
Pairing	*	*	*	*	*	*	*	*	*	*	*	*
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	143	144	145	146	147	150	151	152	153	154	155	157
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	*	*	*	*	*	*	*	*	*	*	*	* *
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Botd/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	160	161	162	163	164	165	166	177	200	201	202	203
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	*	*	*	*	*	*	*	*	—	—	—	—
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	204	206	207	210	211	212	213	214	216	220	221	222
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	—	—	—	—	—	—	—	—	—	—	—	—
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	223	224	230	231	232	233	234	240	241	242	243	244
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	—	—	—	—	—	—	—	—	—	—	—	—
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	265	266	270	271	272	273	274	276	277	300	301	302
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	—	—	—	—	—	—	—	—	—	—	—	—
Echo	*	*	*	*	*	*	*	*	*	—	—	—
Bord/Soft	*	*	*	*	*	*	*	*	*	—	—	—

Wipe No.	246	247	250	251	252	254	255	256	257	260	262	263
Position	—	—	—	—	—	—	—	—	—	—	—	—
Pairing	—	—	—	—	—	—	—	—	—	—	—	—
Echo	*	*	*	*	*	*	*	*	*	*	*	*
Bord/Soft	*	*	*	*	*	*	*	*	*	*	*	*

Wipe No.	303	304	305	306	307
Position	—	—	—	—	—
Pairing	—	—	—	—	—
Echo	—	—	—	—	—
Bord/Soft	—	—	—	—	—

* : can be performed with the pattern.
— : cannot be performed with the pattern.

SECTION 3
POWER SUPPLY SYSTEM ADJUSTMENT

[Instrument]
Digital voltmeter
[Jig]
Extension board: EX-82/83 (Sony part No. J-6028-910-A)

3-1. Analog Circuit System Voltage Adjustment

3-1-1. +9 V adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: EF-13 board	Pin 6 (GND: pin 2) on extension board, +9.0 ± 0.01 V DC	◐ RV4/PS-82

3-1-2. +5 V adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: EF-13 board	Pin 4 (GND: pin 2) on extension board, +5.0 ± 0.01 V DC	◐ RV5/PS-82

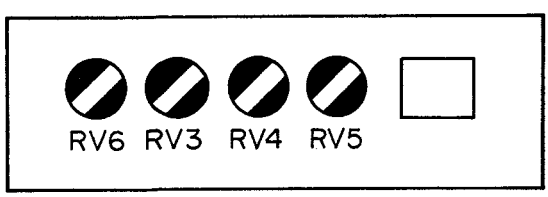
3-1-3. −5 V adjustment

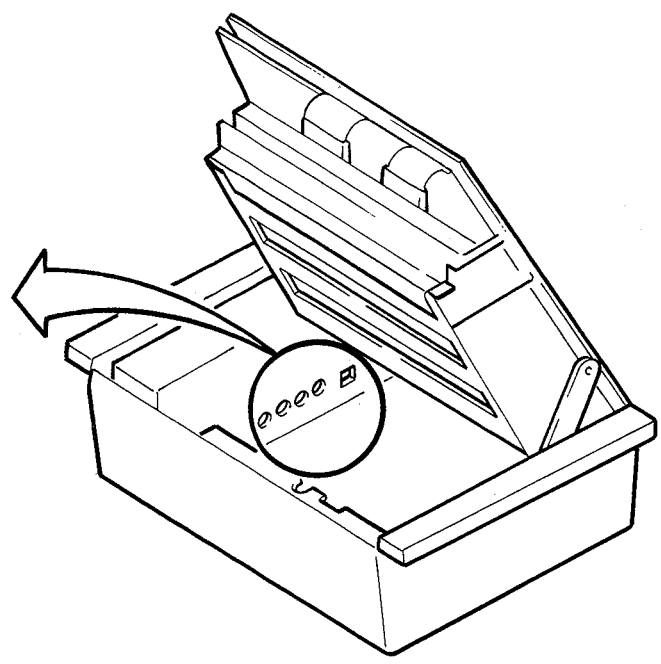
Status at adjustment	Measurement point and specification	Adjustment point
Board extension: EF-13 board	Pin 8 (GND: pin 2) on extension board, −5.0 ± 0.01 V DC	◐ RV6/PS-82

3-2. Digital Circuit System Voltage Adjustment

3-2-1. +9 V adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SY-41 board	Pin 6 (GND: pin 2) on extension board, +9.0 ± 0.01 V DC	◐ RV3/PS-82





SECTION 4
SYNCHRONIZATION SYSTEM ADJUSTMENT

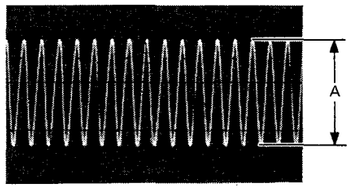
[Instruments]
- Oscilloscope
- Frequency counter
- Waveform monitor (WFM)

[Jig]
- Extension board: EX-82/83 (Sony part No. J-6028-910-A)

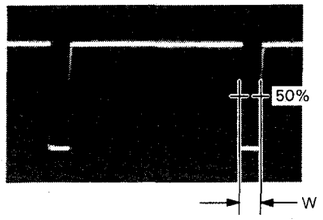
4-1. Subcarrier Frequency Adjustment

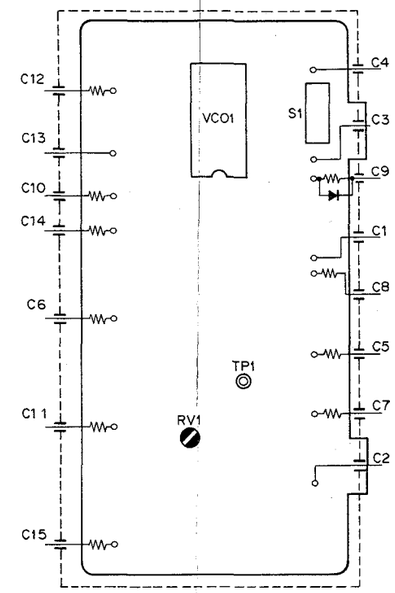
Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	TP25 (GND: TP56)/SD-17 [For SEG-2550A] 3,579,545 ± 3 Hz [For SEG-2550AP] 4,433,618 ± 3 Hz [For SEG-2550APM] 3,575,611 ± 3 Hz	◐ RV1/SG-125

4-2. Subcarrier Gain Adjustment

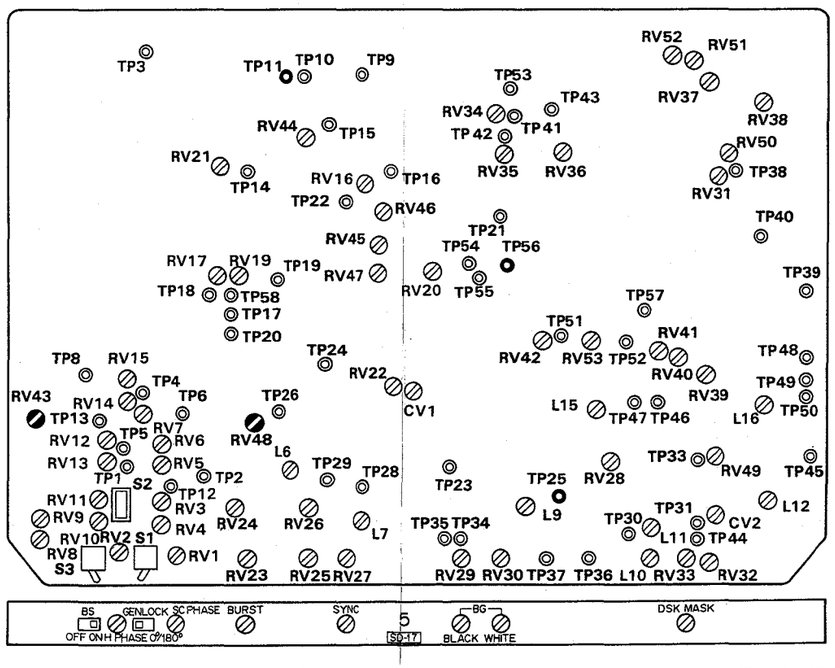
Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	TP25 (GND: TP56)/SD-17  A = 560 ± 10 mV	◐ RV48/SD-17

4-3. HD Width Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	TP11 (GND: TP56)/SD-17  W = 6.6 ± 0.2 μS	◐ RV43/SD-17

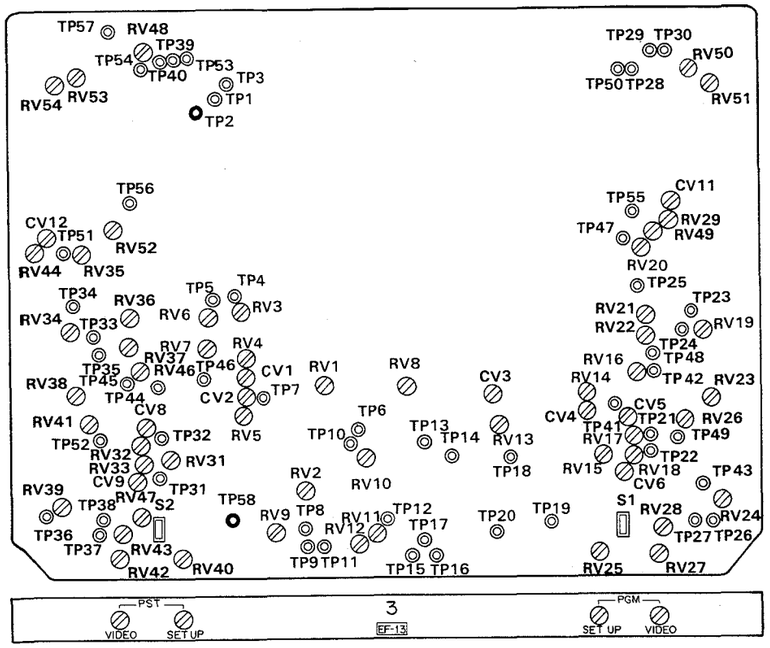


SG-125 Board (Component Side)



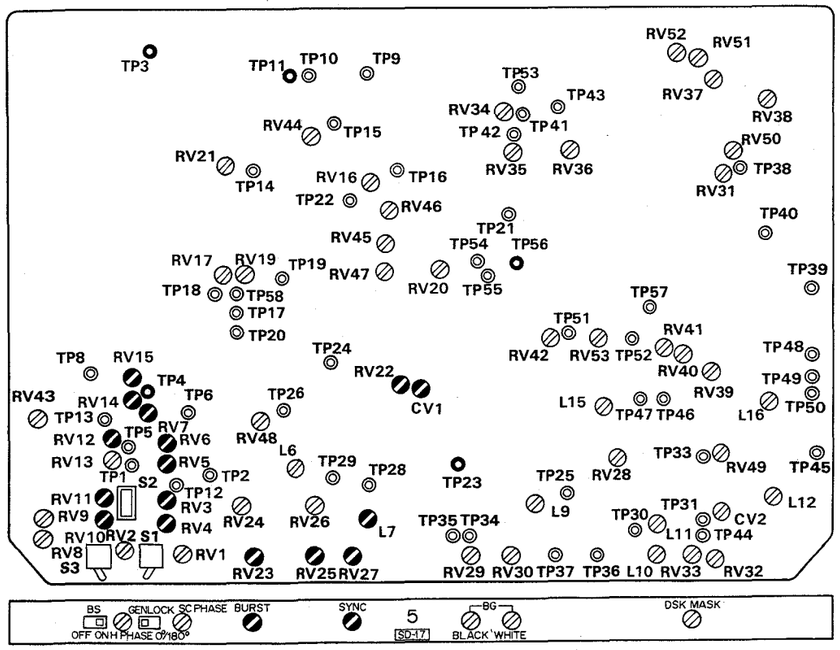
SD-17 Board (Component Side)

※GND:TP56


TP57 RV48 TP39 TP54 TP53 TP40 TP3 TP1 TP2 RV54 RV53
TP29 TP30 RV50 TP50 TP28 RV51
TP56 CV12 TP51 RV52 RV44 RV35
CV11 TP55 RV29 TP47 RV49 RV20 TP25
TP34 RV36 TP5 TP4 RV34 TP33 RV6 RV3
TP23 RV21 RV22 RV19 TP24
RV7 RV4 RV37 TP35 RV46 TP46 CV1 RV1 RV8 CV3
RV16 TP48 RV14 TP42 RV23 RV38 TP45 TP44 CV2 TP7
CV8 TP6 CV5 CV4 TP41 TP21 RV26 RV41 TP10 TP13 TP14 RV13
TP49 TP52 RV32 RV31 RV17 TP22 RV33 CV9 TP31 RV5 RV15 RV18 TP43
RV2 RV10 CV6 RV39 RV47 S2 TP58 RV9 TP8 RV11 TP12 TP18 TP20 TP19 S1 RV28 RV24
TP38 TP36 TP37 RV43 RV12 TP17 TP27 TP26
RV42 RV40 TP9 TP11 TP15 TP16 RV25 RV27
PST VIDEO SET UP
3
EF-13
PGM SET UP VIDEO

EF-13 Board (Component Side)

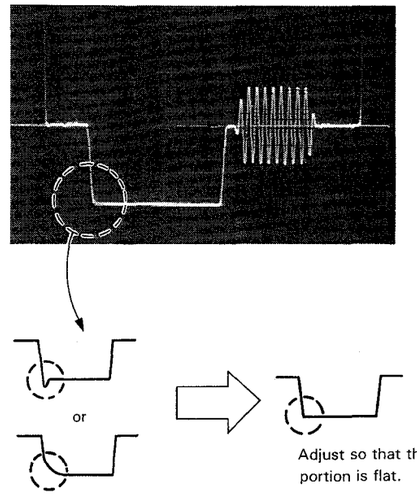
※GND:TP2


TP3 TP11 TP10 TP9 TP53 TP43 RV52 RV51 RV37 RV38
RV34 TP42 TP41 RV44 TP15 RV50
RV21 TP14 RV16 TP16 RV35 RV36 TP38 RV31
TP22 RV46 TP40
TP21 RV45 TP54 TP56 TP39
RV17 RV19 TP19 RV47 RV20 TP55 TP57
TP18 TP58 TP17 TP20 TP51 RV41
TP24 RV42 RV53 TP52 RV40 TP48
TP8 RV15 RV22 TP49
TP4 TP6 TP26 RV39 TP50
RV43 RV14 CV1 L15 TP47 TP46 L16
TP13 RV12 TP5 RV7 RV6 RV48 TP33 RV49 TP45
RV13 RV5 L6 TP29 TP28 TP23 TP25 RV28
TP1 S2 TP2 TP12 RV11 RV3 RV24 RV26 TP35 TP34 L9 TP31 L12
RV9 RV4 L7 TP30 CV2
RV10 RV2 S1 TP44 L11
RV8 RV1
S3 RV23 RV25 RV27 RV29 RV30 TP37 TP36 L10 RV33 RV32
BS OFF ON
GENLOCK H PHASE
SC PHASE 0°/180°
BURST
SYNC
5
SD-17
BG BLACK WHITE
DSK MASK

SD-17 Board (Component Side)

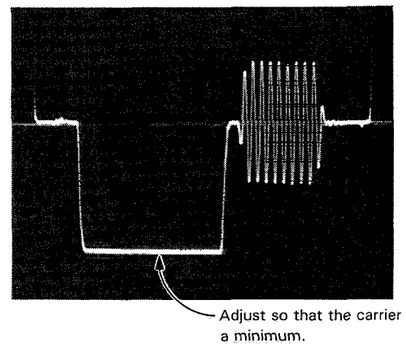
※GND:TP56

4-4. SYNC Waveform Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board When the measuring point is at PGM OUT 1 on rear panel • S3 (BS ON/OFF)/SD-17 Board: "ON" • S1/VR-68 on SD-17 Board: "INT"	TP23/SD-17 	◐ L7/SD-17 TRIG: HD (TP11/SD-17)

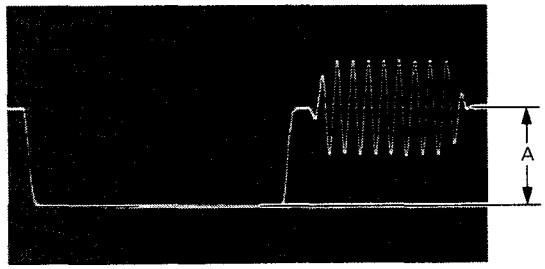
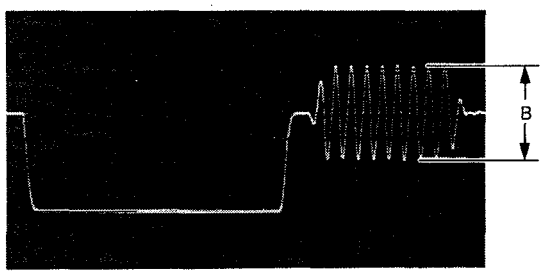
Note: After completing the EFFECT system adjustment, connect the measurement point to PGM OUT 1 on the rear panel and readjust it.

4-5. Carrier Balance Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board When the measuring point is at PGM OUT 1 on rear panel • S3 (BS ON/OFF)/SD-17 Board: "ON" • S1/VR-68 on SD-17 Board: "INT"	TP-23/SD-17 	◐ RV25/SD-17 TRIG: HD (TP11/SD-17)

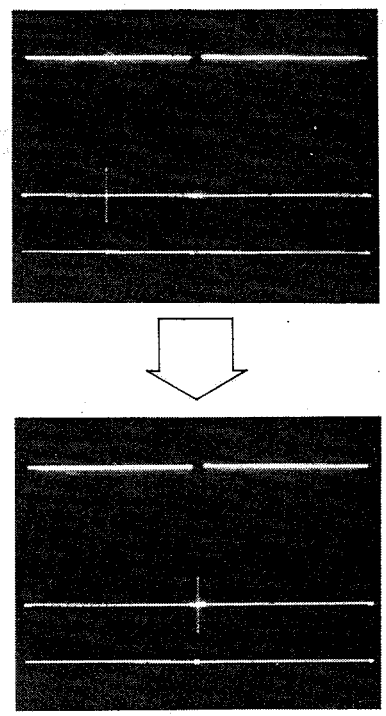
Note: After completing the EFFECT system adjustment, connect the measurement point to PGM OUT 1 on the rear panel and readjust it.

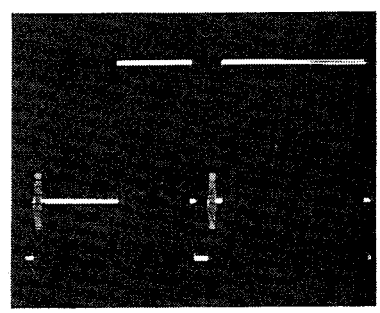
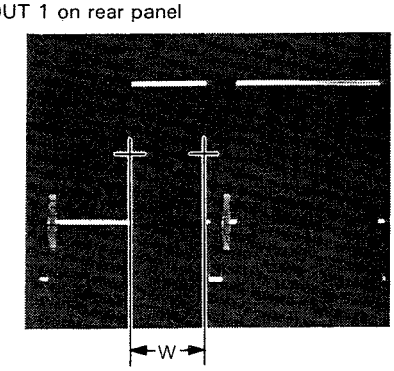
4-16. BLACK BURST Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Disconnect the cable from PGM OUT 1 on the rear panel, and connect it to BLACK BURST OUT 1 on the rear panel. • Board extension: SD-17 board	1. BLACK BURST OUT 1 on rear panel  [For SEG-2550A] A = 40 ± 2 IRE [For SEG-2550AP/APM] A = 300 ± 5 mV	◐RV22/SD-17
	2. BLACK BURST OUT 1 on rear panel  [For SEG-2550A] B = 40 ± 2 IRE [For SEG-2550AP/APM] B = 300 ± 5 mV	◐CV1/SD-17

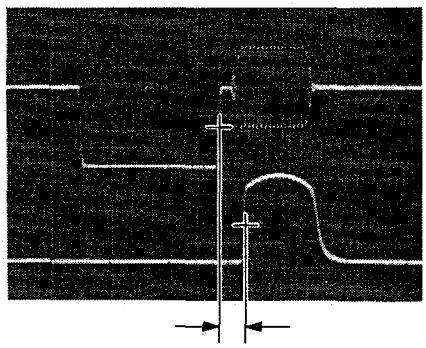
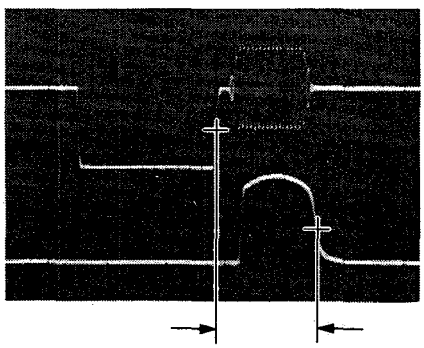
4-15. 1/2H Pulse Width Adjustment

Status at adjustment	Measurement point and specification	Adjustment point

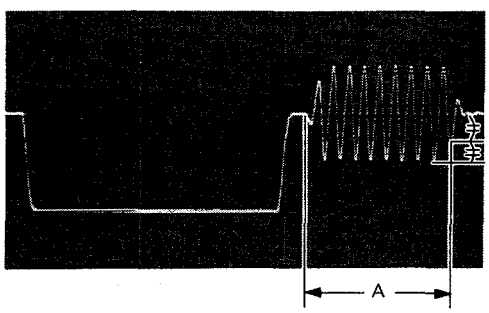
• Waveform monitor
  • DISPLAY: 2 FIELD
  • LINE SELECTION: VAR
• Board extension: SD-17 board
• PGM/PST SW: "PGM"
• PST bus selection button: "BACKGROUND"
• PST bus BACKGROUND SW: "WHT"
	1. PGM OUT 1 on rear panel
	 
		VAR control of LINE SELECTOR on waveform monitor

• Waveform monitor Move the DISPLAY switch from 2 FIELD to 10.	2. PGM OUT 1 on rear panel 	VAR control of LINE SELECTOR on waveform monitor
	3. PGM OUT 1 on rear panel  W = 20.0 ± 2.0 μS	◐ RV4/SD-17

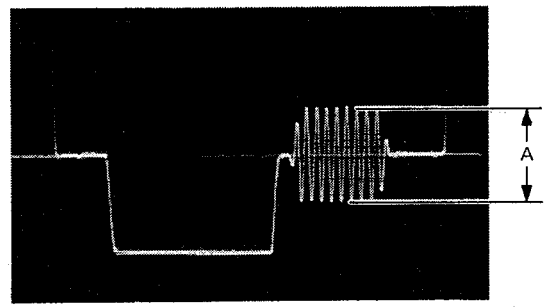
4-13. Clamp Pulse Phase Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: EF-13 board	1. TP-82/ Board extension TP58/ EF-13  0.8 ± 0.1 μS	● RV14/SD-17 (Adjust from the soldered side of the SD-17 board.) TRIG: Pin 74 on extension board
	2. TP-82/ Board extension TP58/ EF-13  3.2 ± 0.1 μS	● RV15/SD-17 (Adjust from the soldered side of the SD-17 board.) TRIG: Pin 74 on extension board

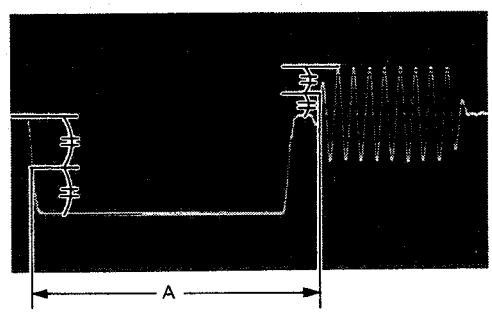
4-14. Burst Width Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	PGM OUT 1 on rear panel  A [For SEG-2550A] A = 9 cycle [For SEG-2550AP] A = 2.25 ± 0.2 μS [For SEG-2550APM] A = 2.5 ± 0.2 μS	● RV11/SD-17

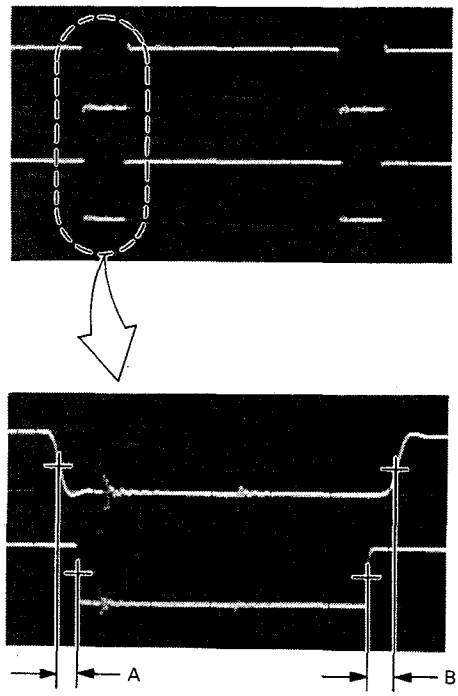
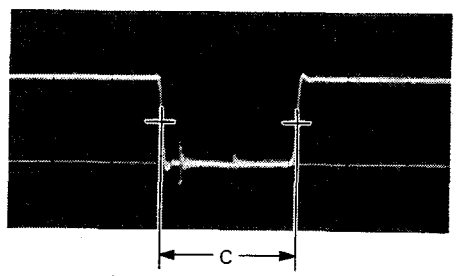
4-11. Burst Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	PGM OUT 1 on rear panel  [For SEG-2550A] A = 40 ± 2 IRE [For SEG-2550AP/APM] A = 300 ± 5mV	◐ RV23/SD-17

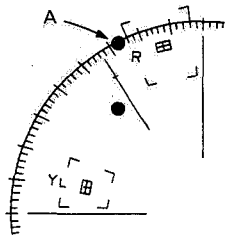
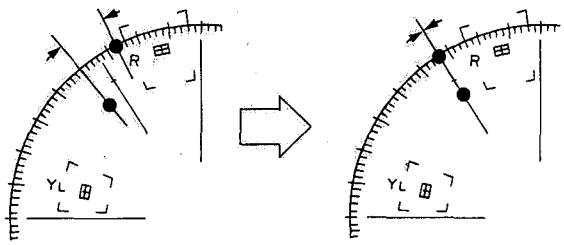
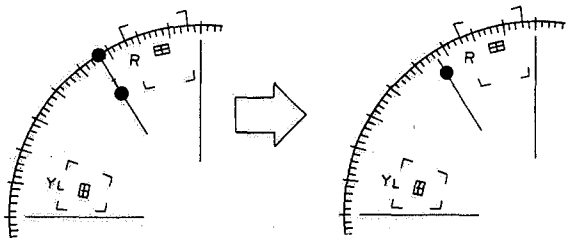
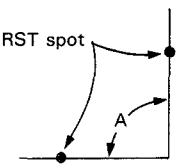
4-12. Burst Phase Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	PGM OUT 1 on rear panel  [For SEG-2550A] A = 5.3 ± 0.1 μS [For SEG-2550AP] A = 5.6 ± 0.1 μS [For SEG-2550APM] A = 5.8 ± 0.1 μS	◐ RV10/SD-17

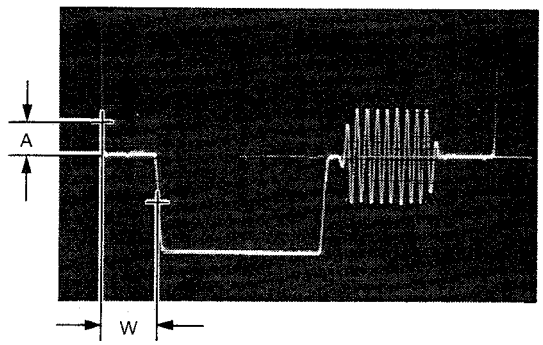
4-10. BLKG Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	1.  A = 0.5 ± 0.1 μS B = 0.7 ± 0.1 μS	A; ◐ RV7/SD-17 B; ◐ RV6/SD-17 TRIG: HD (TP11/SD-17)
	2.  [For SEG-2550A] C = 10.9 ± 0.1 μS [For SEG-2550AP/APM] C = 12.0 ± 0.1 μS	◐ RV3/SD-17 TRIG: HD (TP11/SD-17)

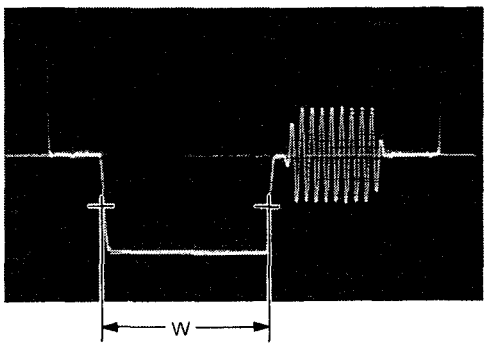
4-9. BURST 90° SHIFT Adjustment [For SEG-2550AP/APM]

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST SW: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND SW: "BLK" • PGM/PST lever: lowermost position	1. Push the NTSC button on Vectorscope.	
	2. Adjust so that BURST spot "A", which is the farthest away from the center on the vectorscope, touches the outer periophery of the standard frame on the vectorscope screen. 	GAIN control on vectorscope
	3. 	PHASE control on vectorscope
	4. 	◐L6/SD-17
	5. Push the PAL button on Vectorscope.	
	6. Adjust so that the angle "A" is 90° ± 1°. 	◐RV24/SD-17

4-8. Front Porch Adjustment

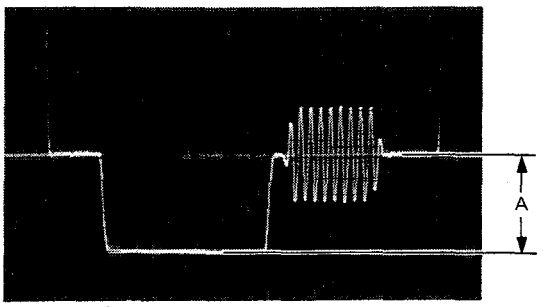
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST SW: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND SW: "WHT" • PGM/PST lever: lowermost position • S3 (BS ON/OFF)/SD-17 Board: "ON" • S1/VR-68 on SD-17 Board: "INT"	PGM OUT 1/rear panel  [For SEG-2550A] A = 4 IRE [For SEG-2550AP/APM] A = 350 mV W = 1.5 ± 0.1 μS	◐ RV5/SD-17 TRIG: HD (TP11/SD-17)

4-6. SYNC Width Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board When the measuring point is at PGM OUT 1 on rear panel • S3 (BS ON/OFF) SD-17 Board: "ON" • S1/VR-68 on SD-17 Board: "INT"	TP23/SD-17  W = 4.7 ± 0.1 μS	◐ RV12/SD-17 TRIG: HD (TP11/SD-17)

Note: After completing the EFFECT system adjustment, connect the measurement point to PGM OUT 1 on the rear panel and readjust it.

4-7. SYNC Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board When the measuring point is at PGM OUT 1 on rear panel • S3 (BS ON/OFF) SD-17 Board: "ON" • S1/VR-68 on SD-17 Board: "INT"	TP23/SD-17  [For SEG-2550A] A = 40 ± 2 IRE [For SEG-2550AP/APM] A = 300 ± 5mV	◐ RV27 SYNC /SD-17 TRIG: HD (TP11/SD-17)

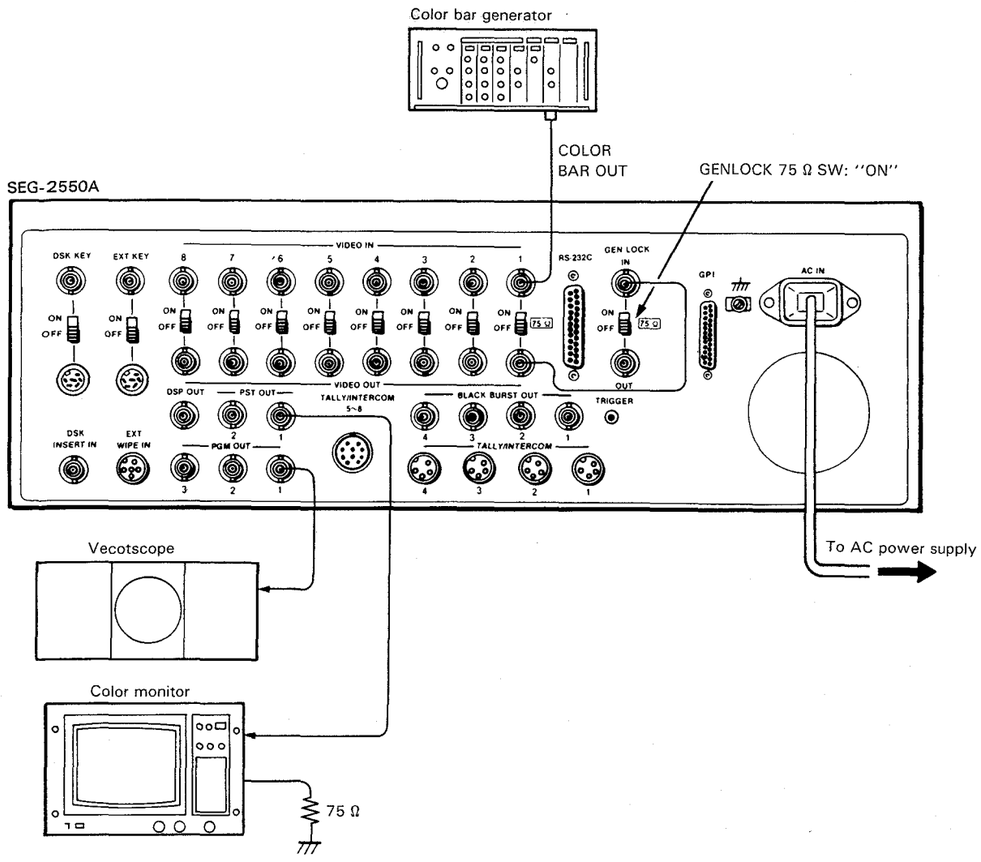
Note: After completing the EFFECT system adjustment, connect the measurement point to PGM OUT 1 on the rear panel and readjust it.

SECTION 5
SC & H PHASE DISPLAY SYSTEM ADJUSTMENT

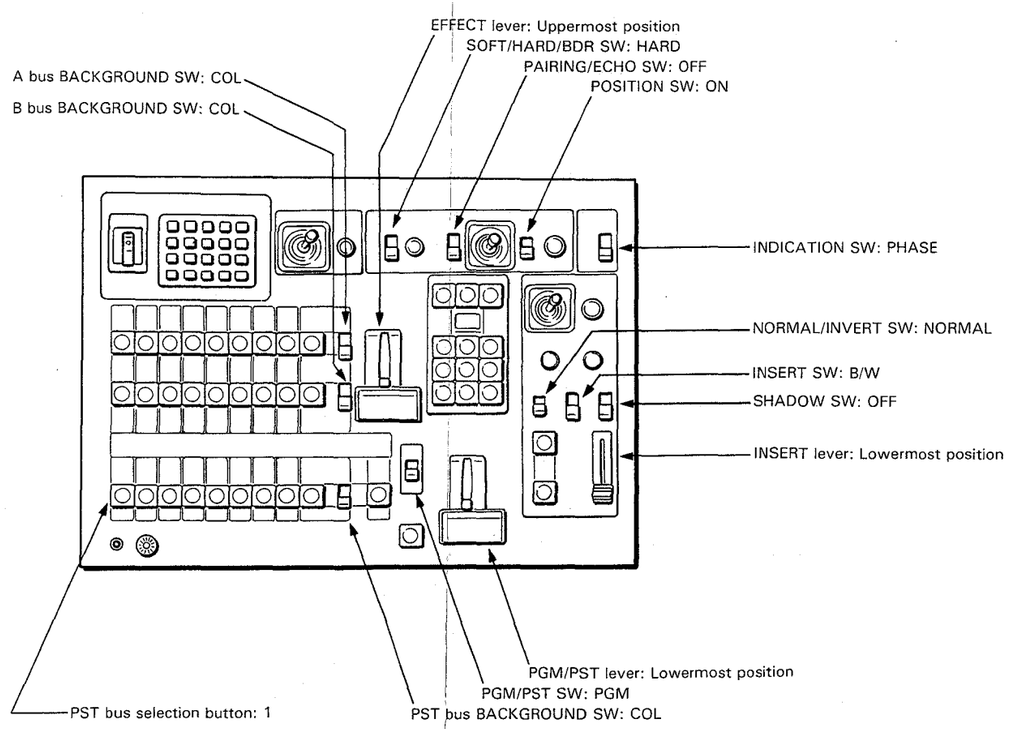
[Instruments]
- Dual Trace oscilloscope
- Vectorscope
- Color monitor
- Color bar generator

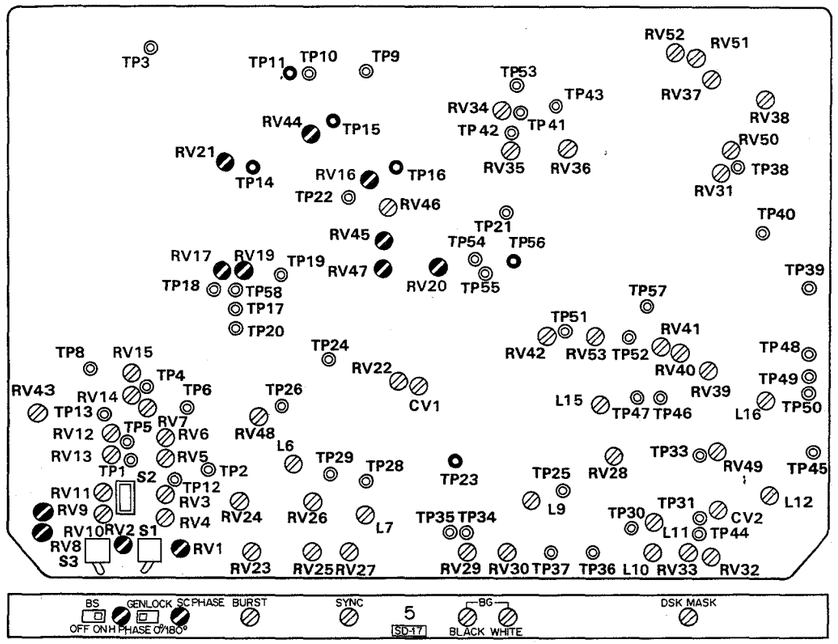
[Jig]
- Extension board EX-82/83 (Sony part number: J-6028-910-A)

[Connection diagram]



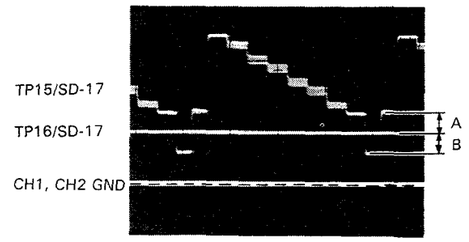
[Switch settings before adjustment]



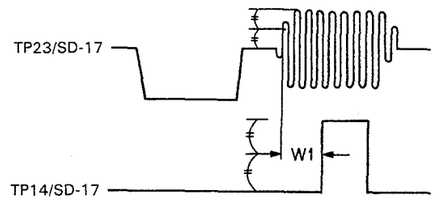
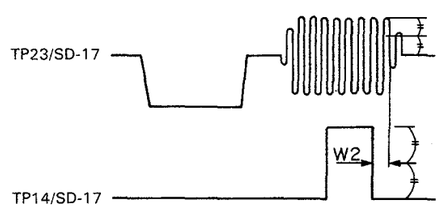


SD-17 Board (Component Side) ※GND:TP56

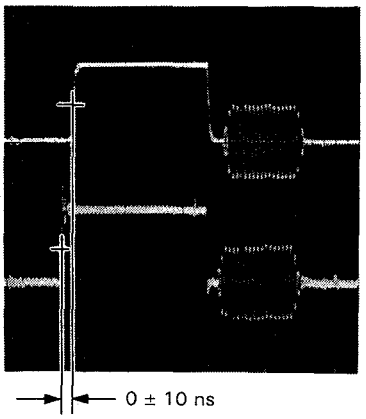
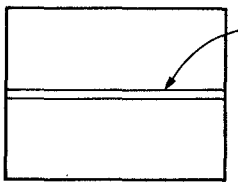
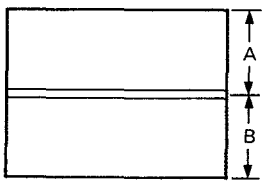
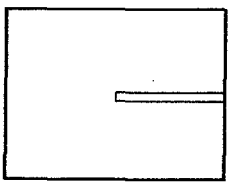
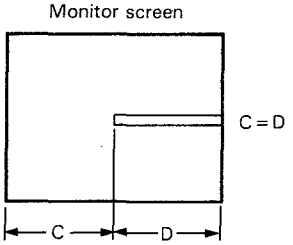
5-1. SYNC SEP Slice Voltage Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: PGM • PST bus selection button: 1 • PGM/PST lever: Lowermost position • PGM CUT IN/OUT button: OFF	• Set CH1 and CH2 of the oscilloscope to the GND range, and align the resultant GND lines. Then set the same VOLTS/DIV value for both CH1 and CH2, and set CH1 and CH2 to the DC range.  A = B	◐RV16/SD-17 TRIG: HD (TP11/SD-17)

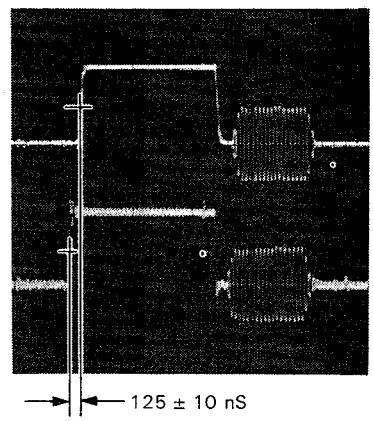
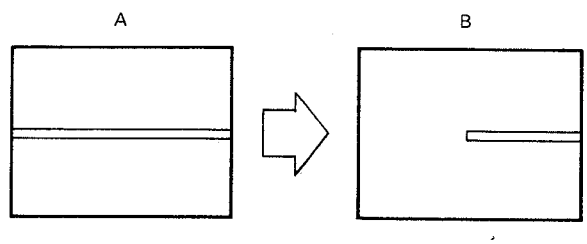
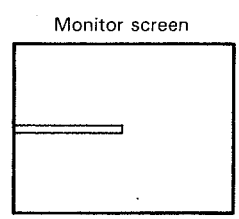
5-2. BF (IND) PHASE Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	1.  [For SEG-2550A] W1 = 0.7 ± 0.1 μS [For SEG-2550AP/APM] W1 = 0.8 $^{+0.1}_{-0.2}$ μS	◐RV8/SD-17 TRIG: HD (TP11/SD-17)
	2.  [For SEG-2550A] W2 = 0.3 ± 0.1 μS [For SEG-2550AP/APM] W2 = 0.2 $^{+0.2}_{-0.1}$ μS	◐RV9/SD-17 TRIG: HD (TP11/SD-17)

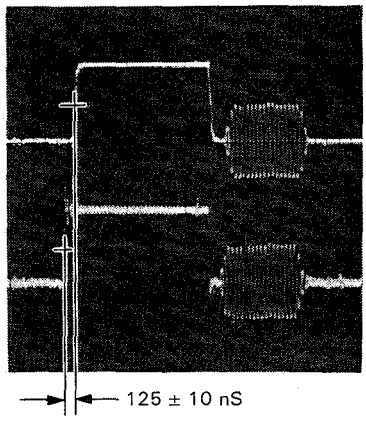
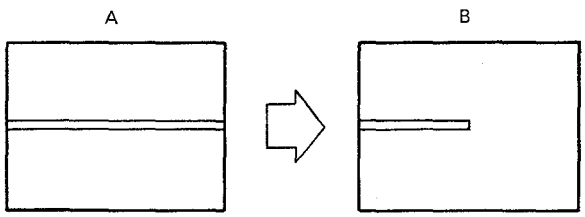
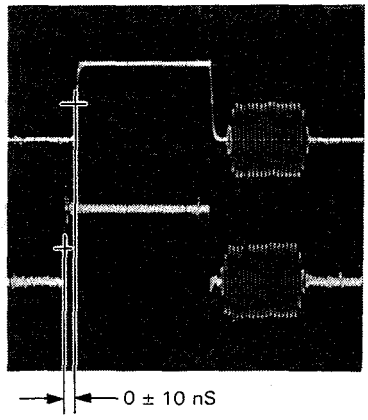
5-3. H PHASE IND Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST SW: "PGM" • PST bus selection button: "1" • INDICATION SW: "PHASE"	1. TP28 on extension board TP30 on extension board  	◐RV2 [H PHASE] /SD-17 TRIG: HD (TP11/SD-17)
	2. Monitor screen  Adjust so that a white line appears on the screen.	◐RV17/SD-17
Move the PGM/PST lever on the control panel to its mechanical center.	3. Monitor screen  	◐RV47/SD-17
	4. Adjust so that a white line appears on the screen, as shown below. Monitor screen 	◐RV2 [H PHASE] /SD-17
	5. Monitor screen  	◐RV20/SD-17

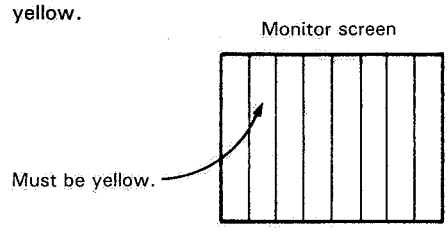
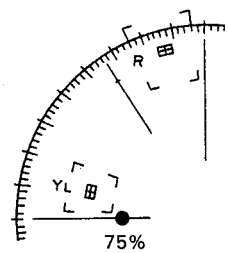
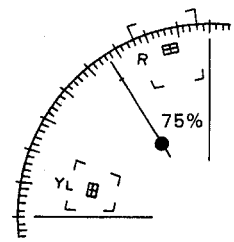
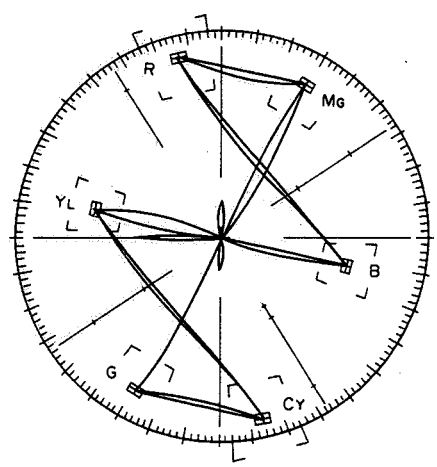
5-4. H PHASE IND Leading Edge Adjustment

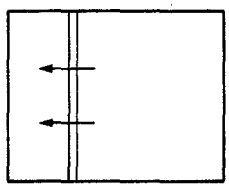
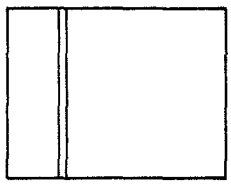
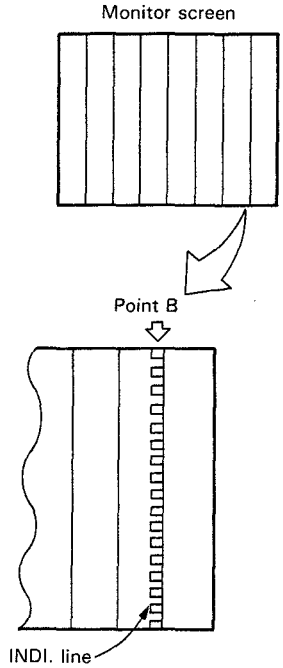
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST SW: "PGM" • PST bus selection button: "1" • INDICATION SW: "PHASE" • PGM/PST lever: Mechanical center	1. TP28 on extension board TP30 on extension board  	◐ RV2 [H PHASE] /SD-17 TRIG: HD (TP11/SD-17)
	2. Adjust to the point at which the white line on the monitor screen begins to change from A to B.  	◐ RV17/SD-17
	3. Adjust so that a white line appears on the monitor screen, as shown below.  	◐ RV2 [H PHASE] /SD-17

5-5. H PHASE IND Trailing Edge Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST SW: "PGM" • PST bus selection button: "1" • INDICATION SW: "PHASE" • PGM/PST lever: Mechanical center	1. TP30 on extension board TP28 on extension board  125 ± 10 nS	◐ RV2 [H PHASE] /SD-17 TRIG: HD (TP11/SD-17)
	2. Adjust to the point at which the white line on the monitor screen begins to change from A to B.  A B	◐ RV19/SD-17
	3. TP28 on extension board TP30 on extension board  0 ± 10 nS	◐ RV2 [H PHASE] /SD-17

5-6. SC PHASE IND Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST SW: "PGM" • PST bus selection button: "1" • INDICATION SW: "PHASE" • PGM/PST lever: Lower most position [For SEG-2550AP/APM] Push the NTSC button on Vectorscope.	1. Adjust the S1 [SC 0°/180°] on the SD-17 board so that the 2nd color bar from the left on the monitor screen is yellow. 	S1 [SC 0°/180°] on SD-17 board
	2. Adjust so that the BURST spot on the vectorscope is at the 75% position on vectorscope screen. [For SEG-2550A]  [For SEG-2550AP/APM] 	PHASE, GAIN control on vectorscope
	3. Adjust ◐RV1 so that all the bright sports on the vectorscope are within the specification frame. 	◐RV1 [SC PHASE] /SD-17

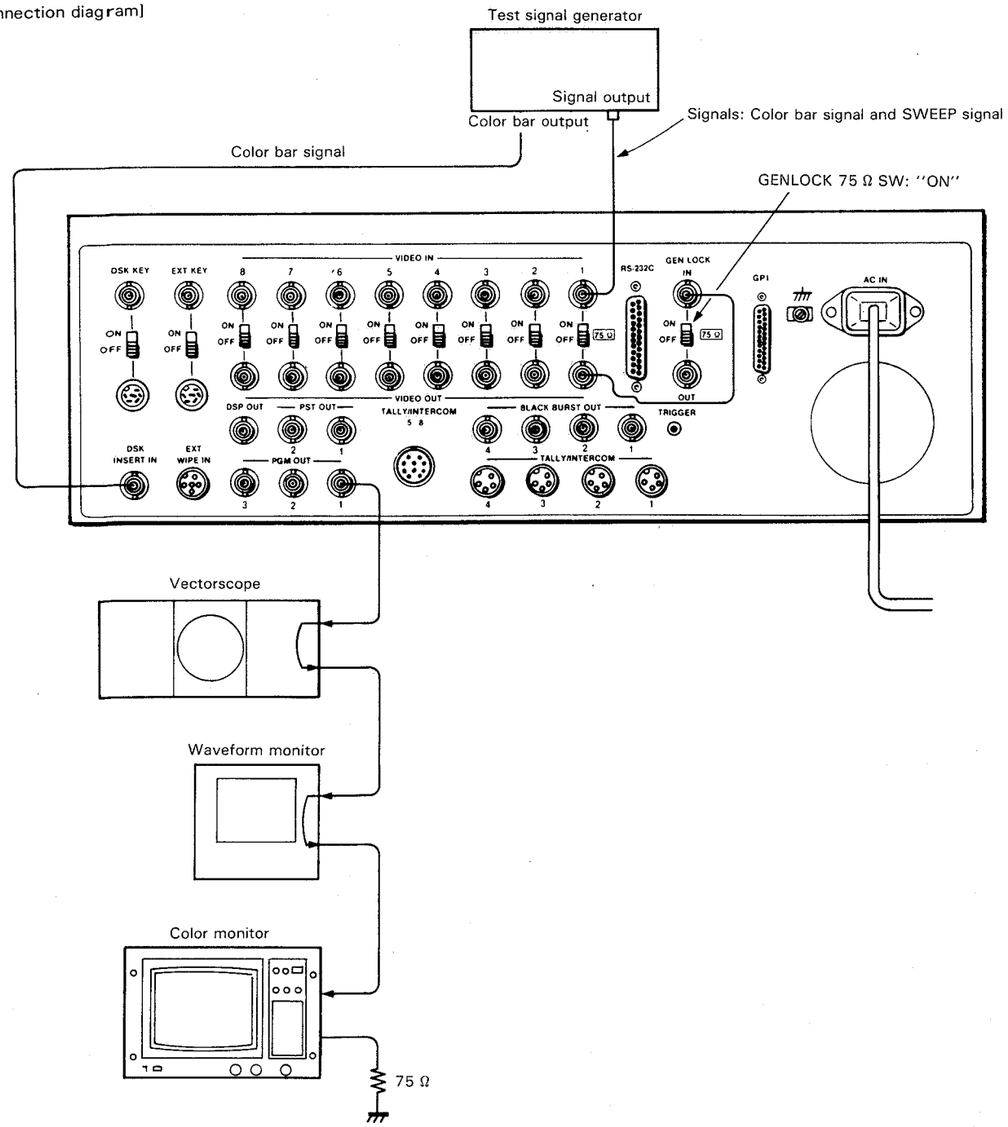
Status at adjustment	Measurement point and specification	Adjustment point
• Set board S1/VR-68 ON SD-17 board to "INT" side	4. Adjust so that the INDI line moves to the left end when the S1 [SC 0°/180°] on the SD-17 board is moved. Monitor screen 	◐ RV44/SD-17 (Adjust from soldered side)
	5. Adjust so that another INDI line completely overlaps the previous INDI. line (regardless of the SC 0°/180° switch setting). Monitor screen  Adjust so that two INDI. lines completely match.	◐ RV45/SD-17
	6. Move the S1 [SC 0°/180°] /SD-17, then adjust ◐ RV21 so that the INDI. line which has jumped to the right end is positioned at point B, as shown below. Monitor screen  Point B INDI. line	◐ RV21/SD-17

SECTION 6
EFFECT SYSTEM ADJUSTMENT

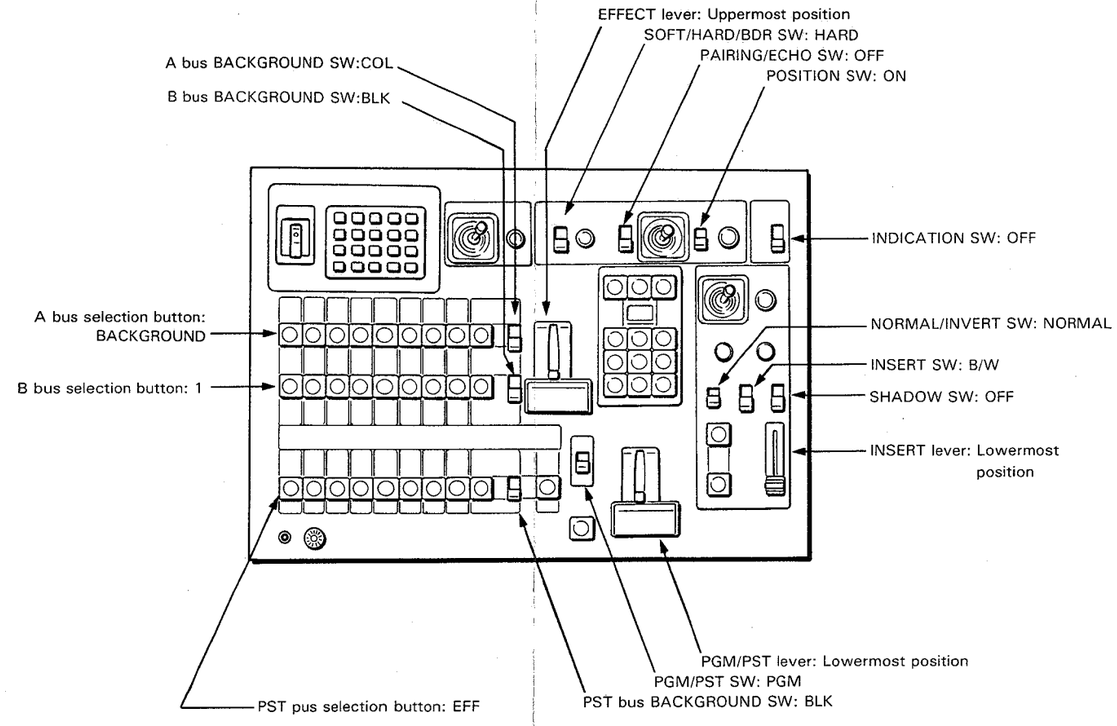
[Instruments]
- Oscilloscope
- Vectorscope
- Waveform monitor
- Color monitor
- Test signal generator (signals: color bar signal and SWEEP signal)

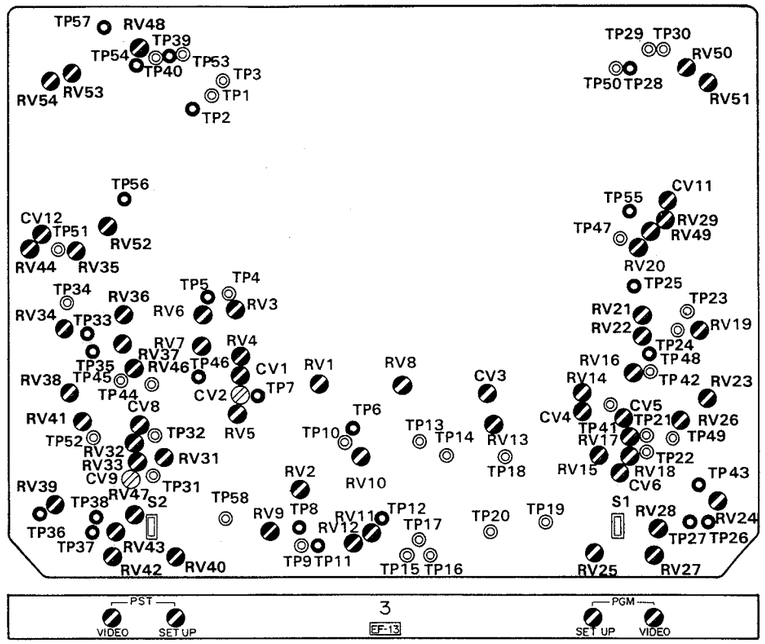
[Jig]
- Extension board EX-82/83 (Sony part number J-6028-910-A)

[Connection diagram]

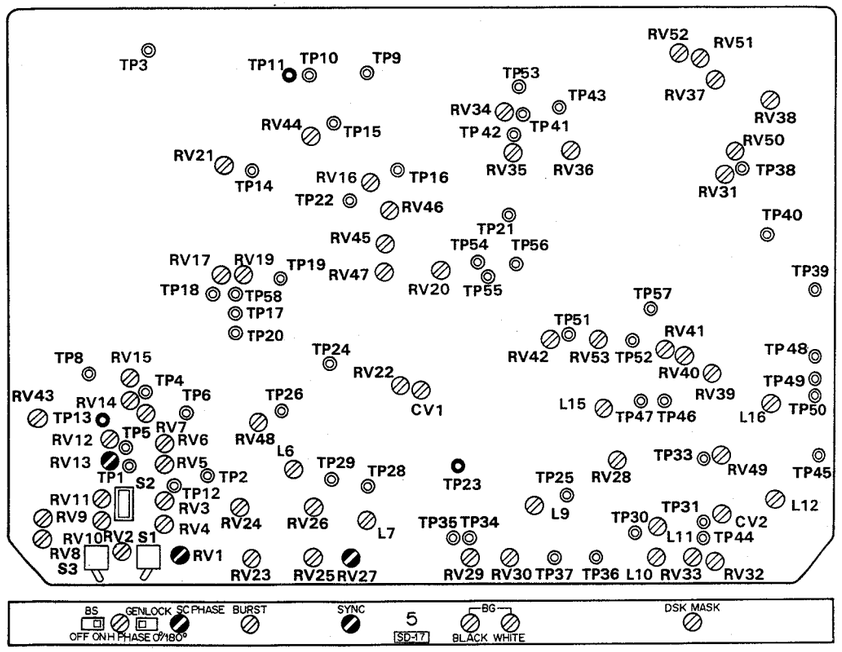


[Switch settings before adjustment]



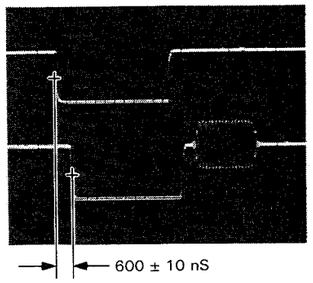

TP57 RV48 TP39 TP54 TP40 TP53 TP3 TP1 TP2 RV54 RV53
TP29 TP30 RV50 TP50 TP28 RV51
TP56 CV12 TP51 RV52 RV44 RV35
TP55 CV11 RV29 TP47 RV49 RV20 TP25
TP34 RV36 TP5 TP4 RV6 RV3 RV34 TP33
TP23 RV21 RV22 RV19 TP24
RV7 RV4 RV37 TP46 CV1 RV1 RV8 CV3
TP35 RV46 RV38 TP45 TP44 CV2 TP7
RV16 TP48 RV14 TP42 RV23 CV5
CV8 TP6 CV4 TP41 TP21 RV26
RV41 TP52 TP32 RV5 TP10 TP13 TP14 RV13 TP49
RV32 RV33 RV31 TP18 RV17 TP22
CV9 TP31 RV15 RV18 TP43 CV6
RV39 RV47 S2 TP58 RV2 RV10 S1
TP38 RV9 TP8 RV11 TP12 TP17 TP20 TP19 RV28 RV24
TP36 RV12 TP27 TP26
TP37 RV43 RV42 RV40 TP9 TP11 TP15 TP16 RV25 RV27
PST VIDEO SET UP
3 EF-13
PGM SET UP VIDEO

EF-13 Board (Component Side) ※GND:TP2

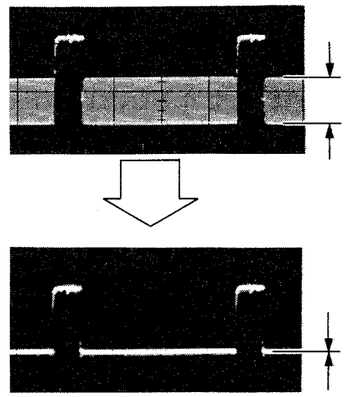
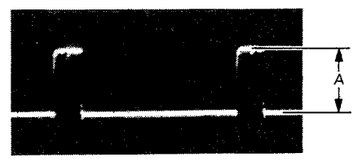

TP3 TP11 TP10 TP9 TP53 RV52 RV51
TP43 RV37 RV38
RV34 TP42 TP41 RV50
RV44 TP15 RV21 TP14 RV16 TP16 RV35 RV36 TP38
TP22 RV46 RV31
TP21 TP40
RV45 TP54 TP56
RV17 RV19 TP19 RV47 RV20 TP55 TP39
TP18 TP58 TP57
TP17 TP51 RV41
TP20 RV42 RV53 TP52 RV40 TP48
TP8 RV15 TP24 RV22 TP49
TP4 RV43 RV14 TP6 TP26 CV1 L15 TP47 TP46 RV39 L16 TP50
TP13 RV7 RV48
RV12 TP5 RV6 TP33 RV49 TP45
RV13 RV5 L6 TP29 TP28 TP23 TP25 RV28
TP1 S2 TP2
RV11 TP12 RV3 L9 TP31 L12
RV9 RV24 RV26 L7 TP35 TP34 TP30 CV2
RV10 RV2 S1 RV4 L11 TP44
RV8 RV1
S3 RV23 RV25 RV27 RV29 RV30 TP37 TP36 L10 RV33 RV32
BS OFF ON H PHASE 0°/180° GENLOCK SC PHASE BURST SYNC
5 SD-17
BG BLACK WHITE DSK MASK

SD-17 Board (Component Side)

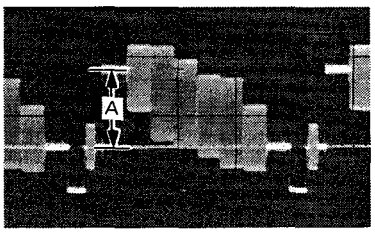
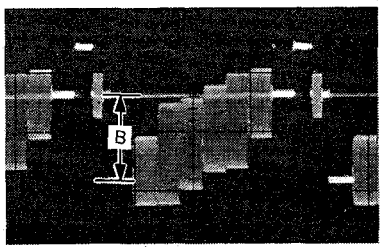
6-1. SYNC Phase Setting

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: SD-17 board	TP13/SD-17 TP23/SD-17  600 ± 10 nS	◐RV13/SD-17 TRIG: HD (TP11/SD-17)

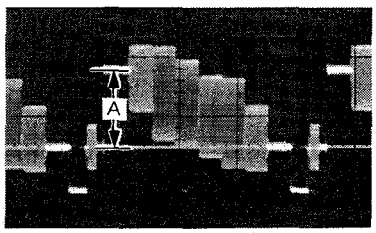
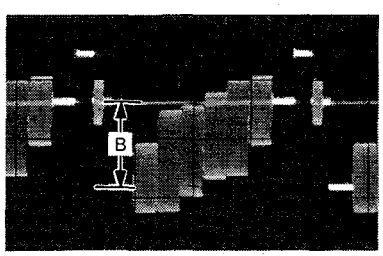
6-2. BACKGROUND COLOR Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST SW: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • A bus BACKGROUND SW: "COL" • EFF lever: Uppermost position • PGM/PST lever: Lowermost position	1. TP7/ EF13 	BACKGROUND COLOR joystick on control panel TRIG: Pin 74 on extension board
	2. Turn the BACKGROUND COLOR LUM control fully clockwise ↻ (MAX). TP7/ EF13  A = 695 ± 5 mV	◐RV14 BGY-1 /SY-41 TRIG: Pin 74 on extension board

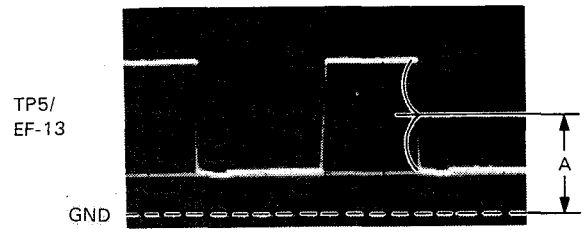
6-3. A bus Input Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST SW: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • EFF lever: Mechanical center • PGM/PST lever: Lowermost position	1. Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
	2. TP7/ EF-13  A = B	◐ RV1/EF-13 TRIG: Pin 74 on extension board

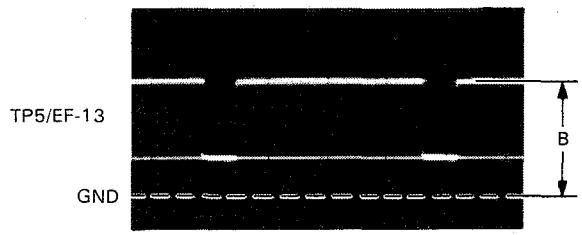
6-4. B bus Input Level Adjustment

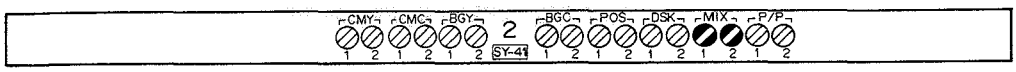
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST SW: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • EFF lever: Mechanical center	1. Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
	2. TP6/ EF-13  B = A	◐ RV8/EF-13 TRIG: Pin 74 on extension board

6-5. WIPE KEY Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • EFF lever: Mechanical center • WIPE SHIFT button: ON • Wipe pattern selection button: ◧ • SOFT/HARD/BDR switch: "HARD" • PAIRING/ECHO switch: "OFF"	 A = 2.0 ± 0.1 V dc	◐ RV6/EF-13 TRIG: Pin 74 on extension board

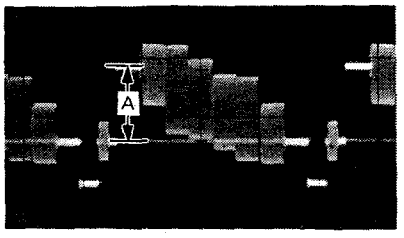
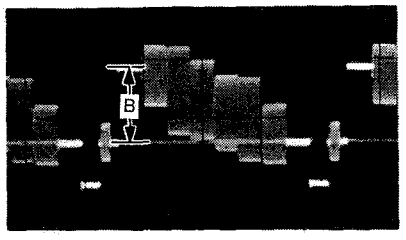
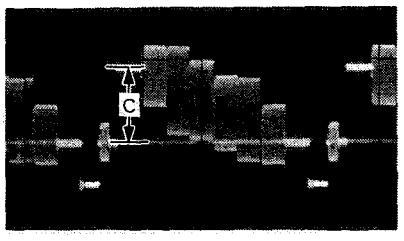
6-6. MIX DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • EFF lever: Uppermost position • MIX button for EFFECT selection: ON	1. A = 1.7 ± 0.01 V dc	◐ RV10 [MIX-1] /SY-41 TRIG: *Pin 74 on extension* board
• EFF lever: Lowermost position	2.  B = 2.3 ± 0.01 V dc	◐ RV2 [MIX-2] /SY-41 TRIG: Pin 74 on extension board

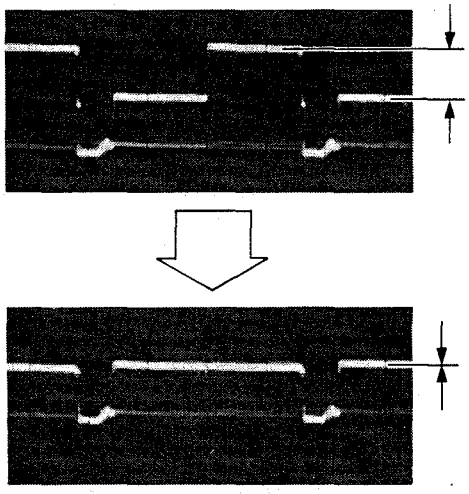
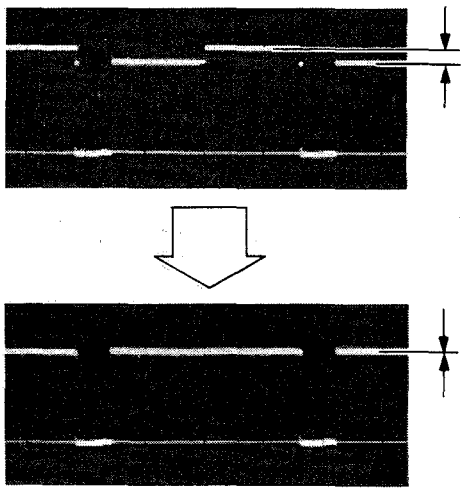


SY-41 Board (Component Side)

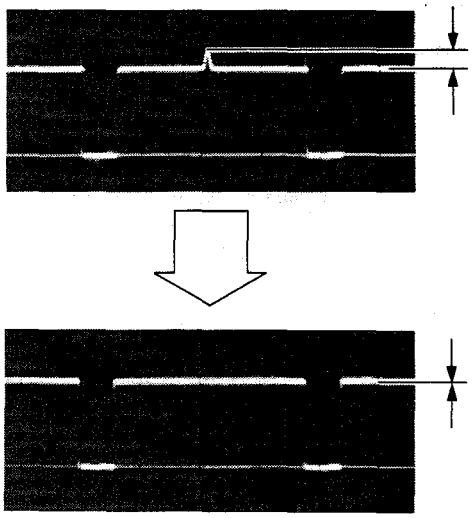
6-7. A/B bus Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	1. Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • EFF lever: Uppermost position • PGM/PST lever: Lowermost position	2. TP46/ EF-13  B=A	◐ RV5/EF-13 TRIG: Pin 74 on extension board
EFF lever: Lowermost position	3. TP46/ EF-13  C=A	◐ RV4/EF-13 TRIG: Pin 74 on extension board

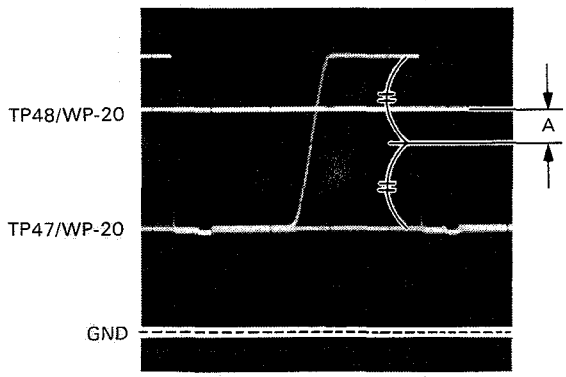
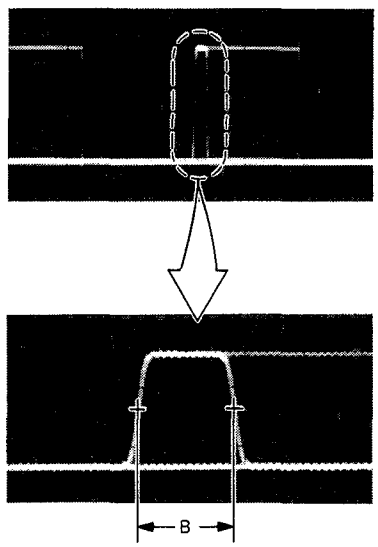
6-8. A/B bus Clamp Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • EFF lever: Mechanical center • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "BLK" • B bus selection button: "BACKGROUND" • B bus BACKGROUND switch: "BLK" • EF-13 Board Panel ◐ A/B BAL Volume: "MECHANICAL CENTER"	1. TP46/ EF-13 	◐ RV2/EF-13 TRIG: Pin 74 on extension board
• A bus BACKGROUND switch: "WHT" • B bus BACKGROUND switch: "WHT"	2. TP46/ EF-13 	◐ RV8/EF-13 TRIG: Pin 74 on extension board

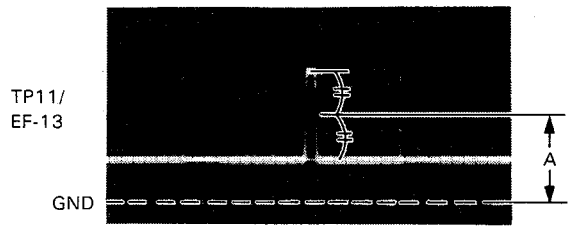
6-9. A/B bus EFF AMP Balance Adjustment

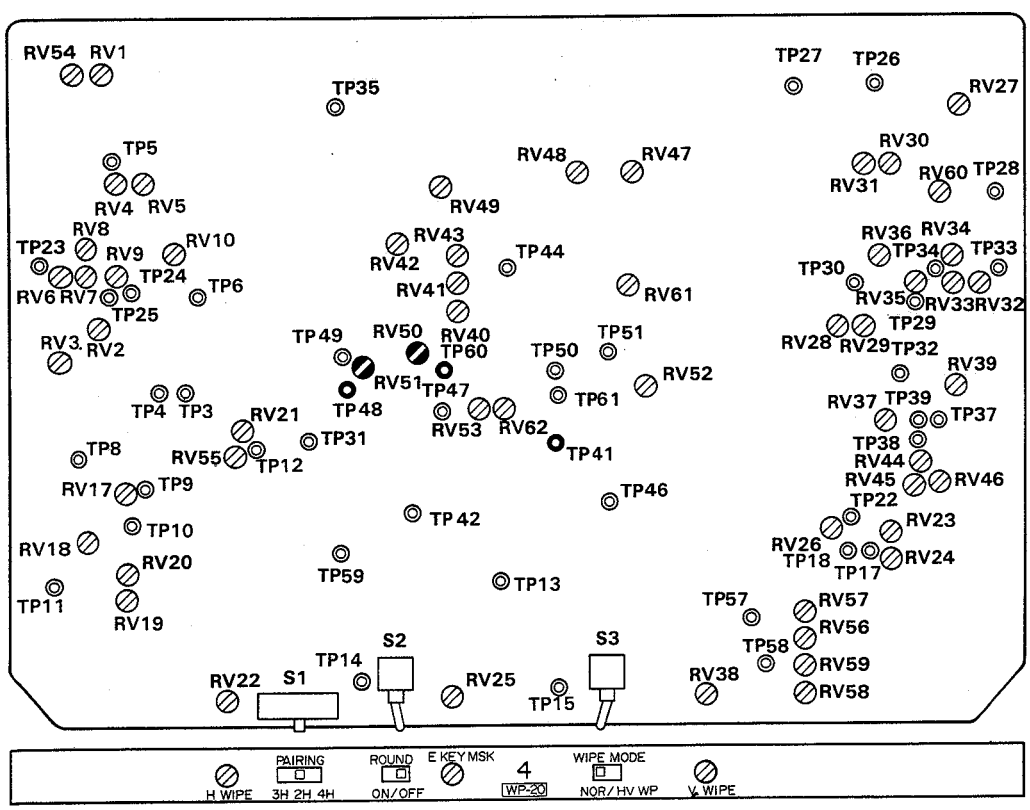
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "WHT" • B bus BACKGROUND switch: "WHT" • EFF lever: Mechanical center • WIPE SHIFT button: ON • Wipe pattern selection button: ◧ • SOFT/HARD/BDR switch: SOFT • SOFT/BDR control: Fully clockwise ↻	TP46/ EF-13 	◐RV3/EF-13 TRIG: Pin 74 on extension board

6-10. BORDER KEY Slice Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "WHT" • B bus BACKGROUND switch: "BLK" • EFF lever: Mechanical center • WIPE SHIFT button: ON • Wipe pattern selection button: ◪ • SOFT/HARD/BDR switch: BDR	1. Set CH1 and CH2 of the oscilloscope to the "GND range", and align the resultant GND lines. Then set the same VOTLS/DIV value for both CH1 and CH2, and set CH1 and CH2 to the DC range.  A = 0.4 ± 0.05 V dc	◐ RV51/WP-20 TRIG: Pin 15 of extension board
• SOFT/BDR control: Fully clockwise ↻	2. Pin 51 of extension board  B = 4.0 ± 0.02μS	◐ RV50/WP-20 TRIG: Pin 15 of extension board

6-11. BORDER KEY Level Adjustment

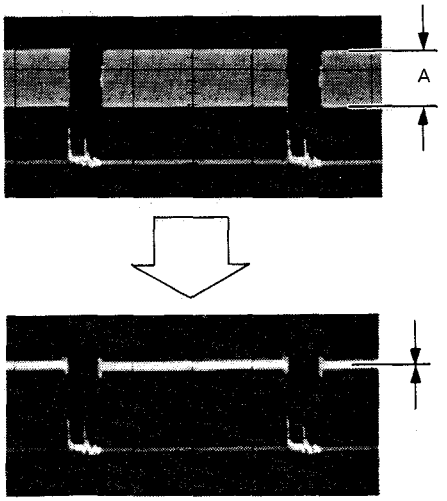
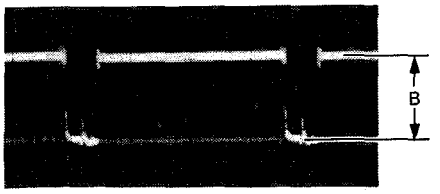
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "WHT" • B bus BACKGROUND switch: "BLK" • WIPE SHIFT button: ON • Wipe pattern selection button: ▄ • SOFT/HARD/BDR switch: "BDR" • SOFT/BDR control: Fully clockwise ↻ • EFF lever: Mechanical center	 A = 2.0 ± 0.1 V dc	◐ RV7/EF-13 TRIG: Pin 74 of extension board



WP-20 Board (Component Side)

※GND:TP41

6-12. Temporary BORDER CM Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • WIPE SHIFT button: ON • EFF lever: Mechanical center • SOFT/HARD/BDR switch: "BDR"	1. Adjust so that level "A" of TP8 on the EF-13 board is at a minimum. 	BACKGROUND COLOR joystick on control panel TRIG: Pin 74 on extension board
	2. TP8/ EF-13  B = 500 ± 10 mV	BACKGROUND COLOR LUM control on control panel TRIG: Pin 74 on extension board

Note: When this adjustment is completed, leave the BACKGROUND COLOR joystick and BACKGROUND COLOR LUM control as they are and perform the following adjustments:

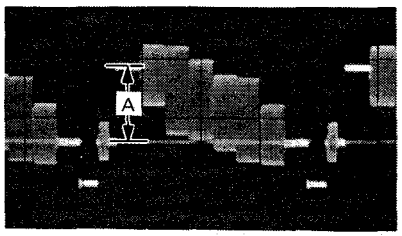
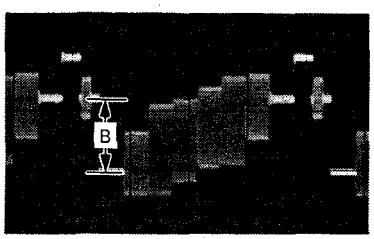
6-13. BORDER VIDEO GAIN Adjustment

6-14. BORDER EFFECT AMP Adjustment

6-15. BORDER COLOR GAIN Adjustment

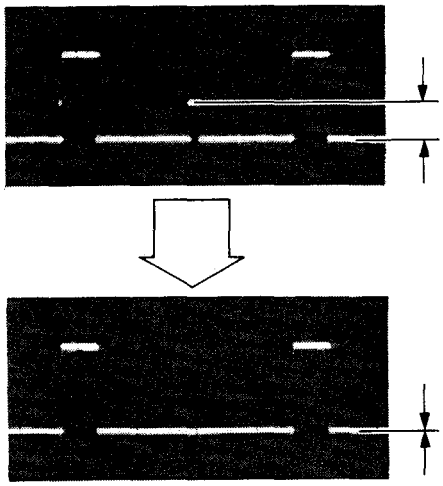
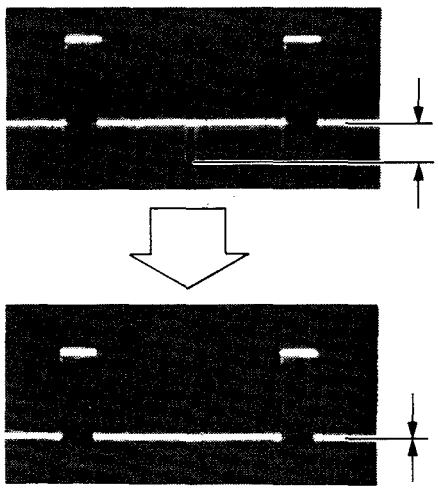
6-13. BORDER VIDEO Gain Adjustment

Note: The temporary BORDER CM adjustment of Section 6-12 must be completed before this adjustment.

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
• EFF level: Uppermost position • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • SOFT/HARD/BDR switch: "BDR" • PGM/PST lever: Lowermost position	TP12/ EF-13  B = A	◐ RV12/EF-13 TRIG: Pin 74 on extension board

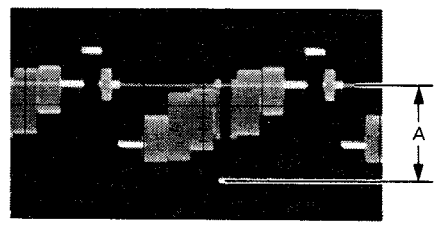
6-14. BORDER EFF AMP Adjustment

Note: The temporary BORDER CM adjustment of Section 6-12 must be completed before this adjustment.

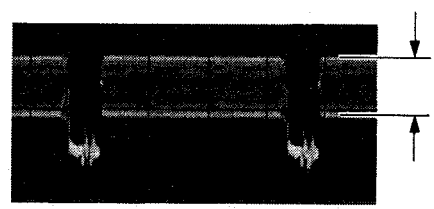
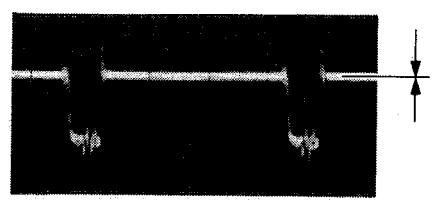
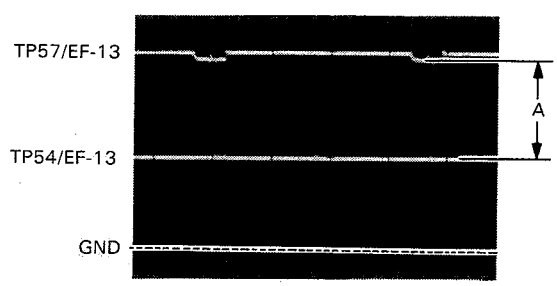
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus selection button: "BACKGROUND" • B bus BACKGROUND switch: "COL" • EFF lever: Mechanical center • SOFT/HARD/BDR switch: "BDR" • SOFT/BDR control: Fully clockwise ↻ • WIPE SHIFT button: ON • Wipe pattern selection button: ◧	1. TP12/ EF-13 	◐ RV9/EF-13 TRIG: Pin 74 on extension board
	2. TP12/ EF-13 	◐ RV10/EF-13 TRIG: Pin 74 on extension board

6-15. BORDER COLOR Gain Adjustment

Note: The temporary BORDER CM adjustment of Section 6-12 must be completed before this adjustment.

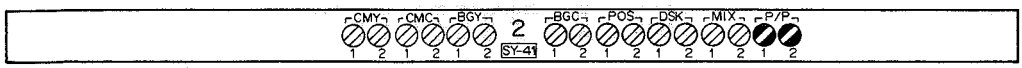
Status at adjustment	Measurement point and specification	Adjustment point
• Set the EFF lever to a position slightly above center. • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • SOFT/HARD/BDR switch: "BDR" • WIPE SHIFT button: ON • Wipe button selection button: ■	TP12/ EF-13  A = 500 ± 10 mV	◐ RV11/EF-13 TRIG: Pin 74 on extension board

6-16. BORDER CM Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • BACKGROUND COLOR LUM control: Fully counterclockwise ↺ • EFF lever: Uppermost position	1. Adjust so that level "A" of TP57 on the EF-13 board is at a minimum.  	BACKGROUND COLOR joystick on control panel TRIG: Pin 74 on extension board
	2. Set CH1 and CH2 of the oscilloscope to the "GND range", and align the resultant GND lines. Then set the same VOLTS/DIV value for both CH1 and CH2, and set CH1 and CH2 to the "DC range".  A = 0.8 ± 0.05 V dc	◐ RV48/EF-13 TRIG: Pin 74 on extension board

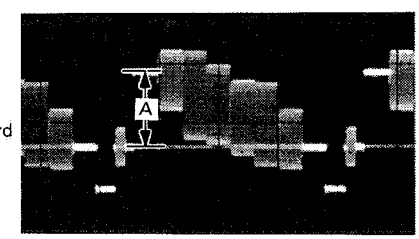
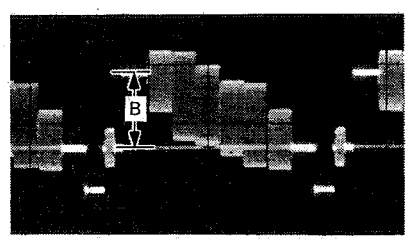
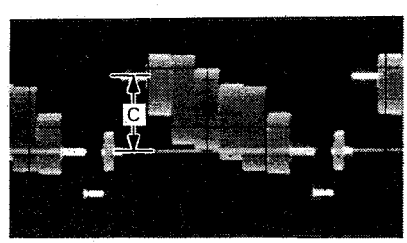
6-17. PGM/PST Lever DC Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: EF-13 board PGM/PST lever: Uppermost position	1. Pin 27 (GND: pin 2) on extension board: +2.3 ±0.01 V DC	◐ RV1 P/P-2 /SY-41
PGM/PST lever: Lowermost position	2. Pin 27 (GND: pin 2) on extension board: +1.7 ±0.01 V DC	◐ RV9 P/P-1 /SY-41

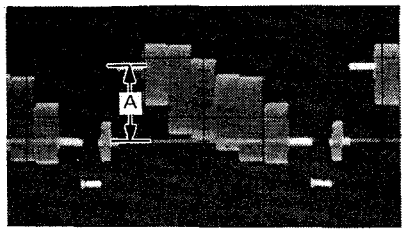
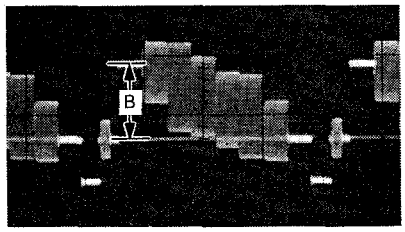
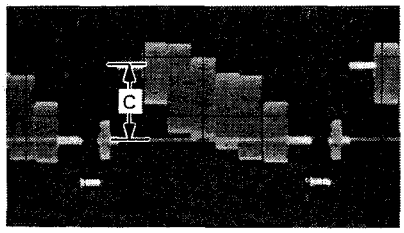


SY-41 Board (Component Side)

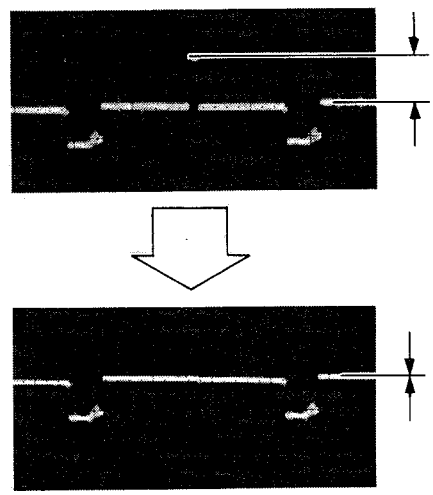
6-18. PGM/PST MIX Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	1. Pin 91 on extension board  Measure level "A".	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • EFF lever: Uppermost position • PGM lever: Lowermost position	2. TP48/EF-13  B = A	◐ RV18/EF-13 TRIG: Pin 74 on extension board
• PST bus selection button: "1"	3. TP48/EF-13  C = A	◐ RV13/EF-13 TRIG: Pin 74 on extension board

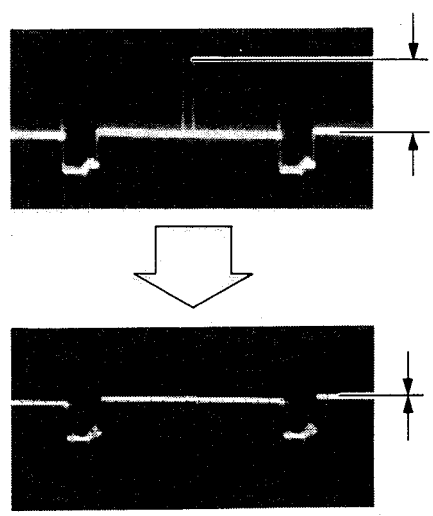
6-19. PGM/PST MIX D bus Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	1. Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • EFF lever: Uppermost position • PGM/PST lever: Uppermost position	2. TP48/EF-13  B=A	◐ RV17/EF-13 TRIG: Pin 74 on extension board
• PST bus selection button: "1"	3. TP48/EF-13  C=A	◐ RV14/EF-13 TRIG: Pin 74 on extension board

6-20. PGM/PST MIX Clamp Level Adjustment

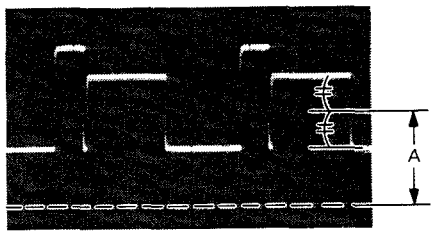
Status at adjustment	Measurement point and specification	Adjustment point
• Boad extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • WIPE SHIFT button: ON • Wipe pattern selection button: ■□ • EFF lever: Mechanical center • PGM/PST lever: Mechanical center • SOFT/HARD/BDR switch: "BDR" Setting of switch on the board • S1 on EF-13 board: "BORD"	TP48/EF-13 	◐ RV15/EF-13 TRIG: Pin 74 on extension board

6-21. PGM/PST MIX Balance Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • WIPE SHIFT button: ON • Wipe pattern selection button: ■□ • EFF lever: Mechanical center • PGM/PST lever: Mechanical center • SOFT/HARD/BDR switch: "BDR" Setting of switch on the board • S1 on EF-13 board: "BORD"	TP48/EF-13 	◐ RV16/EF-13 TRIG: Pin 74 on extension board

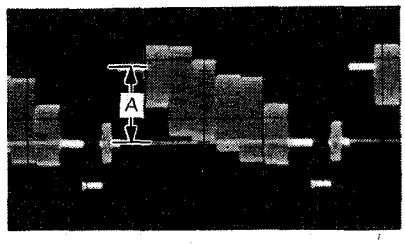
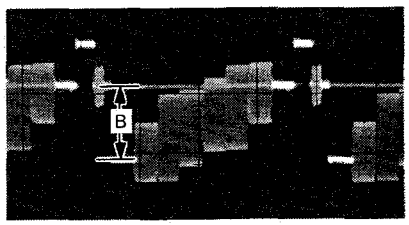
Note: When this adjustment is completed, set the switches as follows:
- SOFT/HARD/BDR switch: "HARD"
- S1 on EF-13 board: "TM"

6-22. DSK KEY Level Adjustment

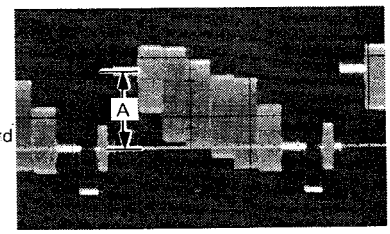
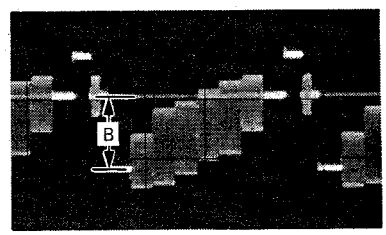
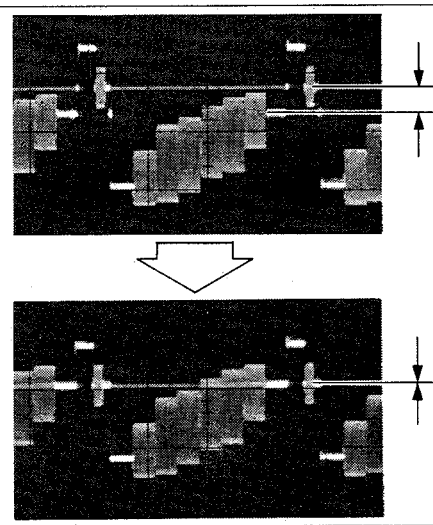
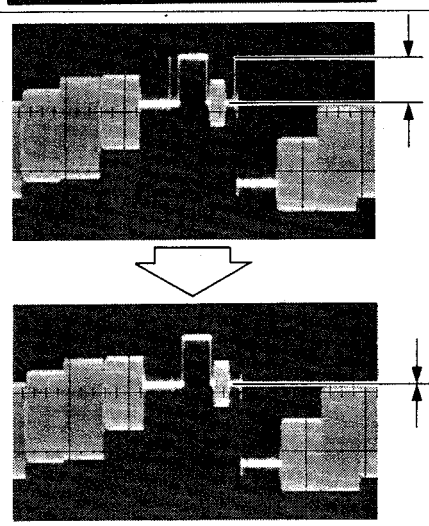
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • INSERT/PGM lever: Lowermost position • NORMAL/INVERT switch: "NORMAL" • PGM CUT IN/OUT button: ON • DSK KEY LEVEL control: *Mechanical center* • EDGE control: Fully counterclockwise ↺ Control setting on board • ◐ RV33 [DSK MASK] on SD-10 board: Fully counterclockwise ↺	• Disconnect the cable from the DSK INSERT IN terminal on the rear panel, and connect it to the DSK KEY terminal on the rear panel. TP25/ EF-13 GND  A = 2.0 ± 0.1 V dc	◐ RV23/EF-13 TRIG: Pin 74 on extension board

Note: When this adjustment is completed, disconnect the cable from the DSK KEY terminal on the rear panel and reconnect it to the DSK INSERT IN terminal on the rear panel.

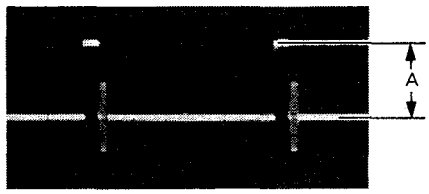
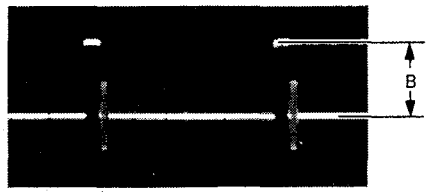
6-23. DSK Video Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position • INSERT/PGM lever: Lowermost position • NORMAL/INVERT switch: "NORMAL" • PGM CUT IN/OUT button: ON • DSK KEY LEVEL control: Fully clockwise ↻	Pin 91 on extension board  	TRIG: Pin 74 on extension boad
	TP27/ EF-13  B = A	◐ RV21/EF-13 TRIG: Pin 74 on extension board

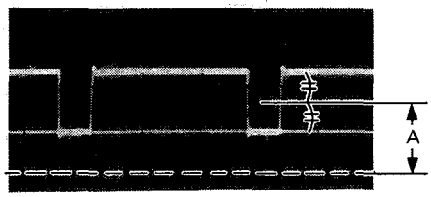
6-24. DSK GAIN and CLAMP Balance Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position • INSERT/PGM lever: Lowermost position • NORMAL/INVERT switch: "NORMAL" • PGM CUT IN/OUT button: ON • DSK INSERT switch: "EXT" • DSK KEY LEVEL control: Fully counterclockwise ↺ • Input the color bar signal to the DSK INSERT IN terminal (BNC) on the rear panel.	1. Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
	2. TP27/ EF-13  B = A	◐ RV22/EF-13 TRIG: Pin 74 on extension board
	3. TP27/ EF-13 	◐ RV19/EF-13 TRIG: Pin 74 on extension board
	4. TP27/ EF-13 	◐ RV20/EF-13 TRIG: Pin 74 on extension boadr

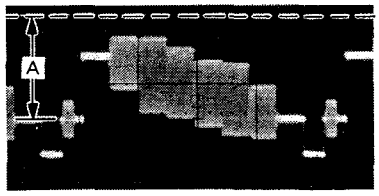
6-25. BLACK-BURST SYNC Gain Adjustment 1

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: EF-13 board	1. TP82 on extension board  [For SEG-2550A] A = 290 ± 5 mV [For SEG-2550AP/APM] A = 300 ± 5 mV	◐ RV27 SYNC /SD-17 TRIG: Pin 74 on extension board
	2. TP26/EF-13  [For SEG-2550A] B = 290 ± 5 mV [For SEG-2550AP/APM] B = 300 ± 5 mV	◐ RV50/EF-13 TRIG: Pin 74 on extension board

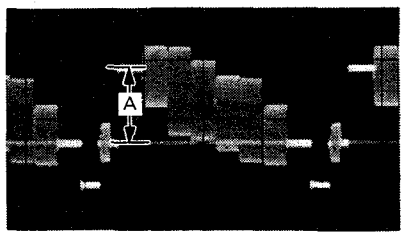
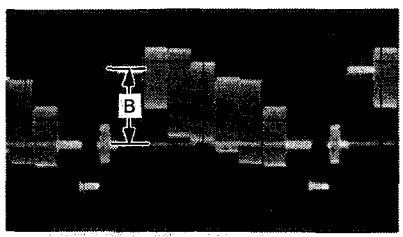
6-26. BLANKING Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Board extension: EF-13 board	TP43/EF-13  A = 2.0 ± 0.1 V dc	◐ RV24/EF-13 TRIG: Pin 74 on extension board

6-27. Temporary PHASE SHIFT Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	TP55/EF-13  A = −1.5 ± 0.1 V dc	◐ RV49/EF-13 TRIG: Pin 74 on extension board

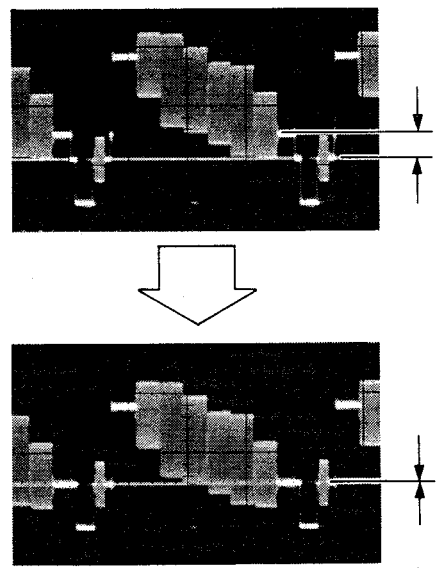
6-28. VIDEO GAIN Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	TP55/EF-13  B = A	◐ RV27 [PGM VIDEO] /EF-13 TRIG: Pin 74 on extension board

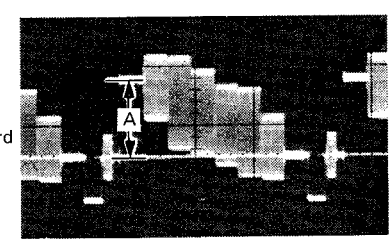
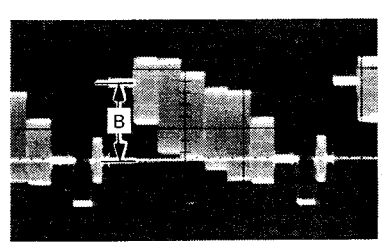
6-29. PGM bus BLACK BURST SYNC Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	TP55/EF-13 [For SEG-2550A] A = 290 ± 5 mV [For SEG-2550AP/APM] A = 300 ± 5 mV	◐ RV28/EF-13 TRIG: Pin 74 of extension board

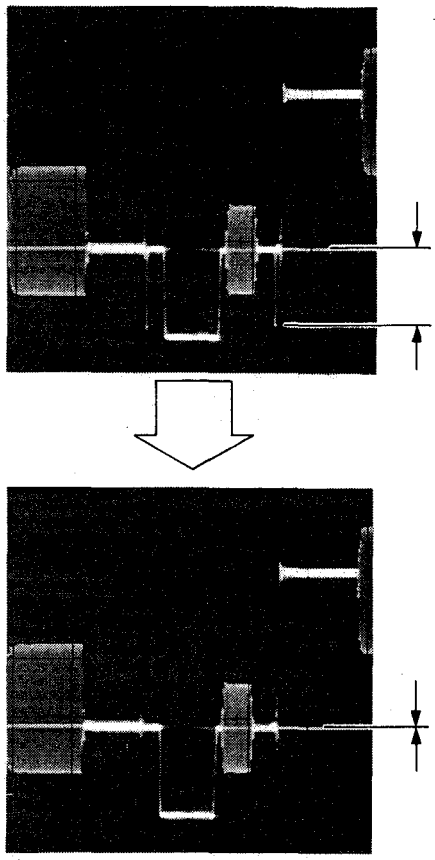
6-30. PGM bus SET UP Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	TP55/ EF-13 	◐ RV25 [PGM SET UP] /EF-13 TRIG: Pin 74 on extension board

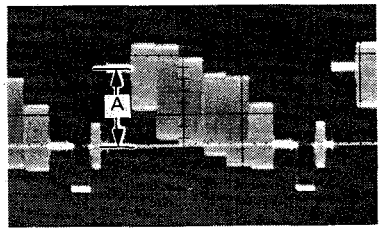
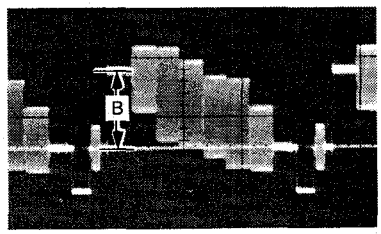
6-31. 75 Ω DRIVE AMP Gain Adjustment 1

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	Pin 91 on extension board 	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	TP28/ EF13  B = A	◐ RV29/EF-13 TRIG: Pin 74 on extension board

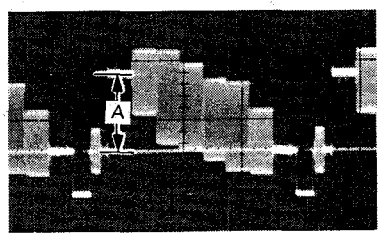
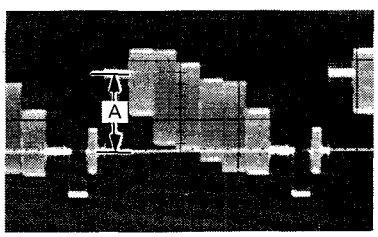
6-32. BLACK-BURST Replacement Amplifier Balance Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	TP28/ EF-13 	◐ RV26/EF-13 TRIG: Pin 74 on extension board

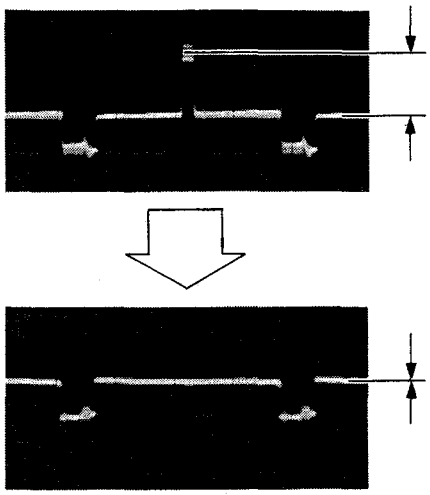
6-33. PGM/PST MIX C bus Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	Pin 91 on extension board 	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Uppermost position	TP33/ EF-13  B = A	◐ RV32/EF-13 TRIG: Pin 74 on extension board

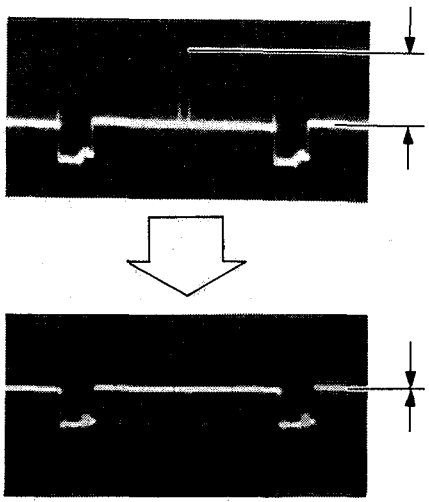
6-34. PGM/PST MIX D bus Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	Pin 91 on extension board 	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Loermost position	TP33/ EF-13  B = A	◐ RV33/EF-13 TRIG: Pin 74 on extension board

6-35. PGM/PST MIX DC Balance Adjustment

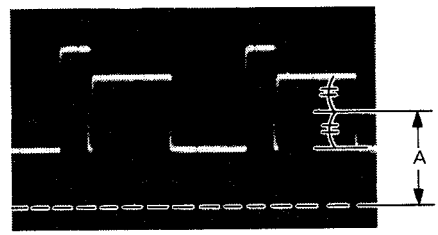
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • WIPE SHIFT button: ON • Wipe pattern selection button: ◧ • SOFT/HARD/BDR switch: "BDR" • EFF lever: Mechanical center • PGM/PST lever: Mechanical center • SOFT/BDR control: Fully clockwise ↻ Setting of switch on the board • S2 on EF-13 board: "BORD"	TP33/ EF-13 	◐ RV31/EF-13 TRIG: Pin 74 on extension board

6-36. PGM/PST MIX Balance Adjustment

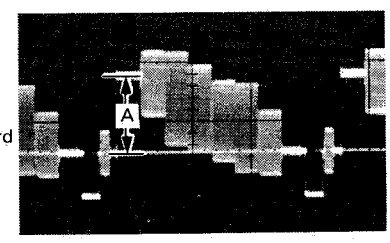
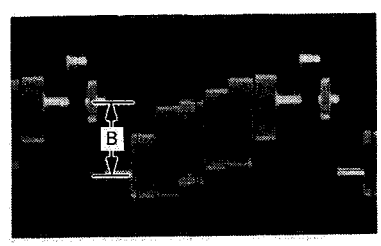
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST SW: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • WIPE SHIFT button: ON • Wipe pattern selection button: ◧ • SOFT/HARD/BDR switch: "BDR" • EFF lever: Mechanical center • PGM/PST lever: Mechanical center • SOFT/BDR control: Fully clockwise ↻ Setting of switch on the board • S2 on EF-13 board: "BORD"	TP33/ EF-13 	◐ RV46/EF-13 TRIG: Pin 74 on extension board

Note: When this adjustment is completed, set the switches as follows:
- SOFT/HARD/BDR switch: "HARD"
- S2 on EF-13 board: "TM"

6-37. DSK KEY Level Adjustment 2

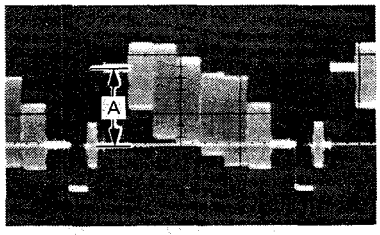
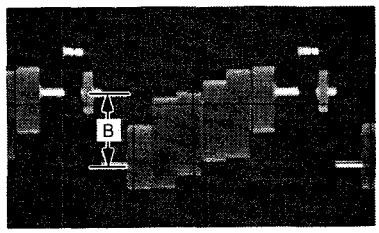
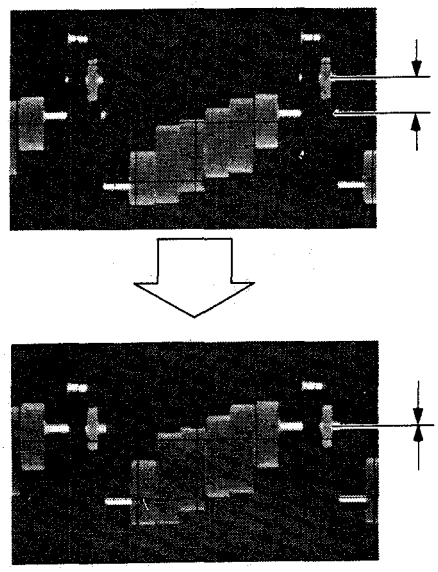
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • DSK NORMAL/INVERT switch: NORMAL • DSK KEY LEVEL control: Mechanical center • EDGE control: Fully counterclockwise ↺ • PST CUT IN/OUT button: ON • ◐ RV 33 DSK MASK on SD-17: Fully counterclockwise ↺	• Disconnect the cable from the DSK INSERT IN terminal on the rear panel and connect it to the DSK KEY terminal on the rear panel. TP35/ EF-13  A = 2.0 ± 0.1 V dc	◐ RV38/EF-13 TRIG: Pin 74 on extension board

6-38. PST bus DSK VIDEO Gain Adjustment

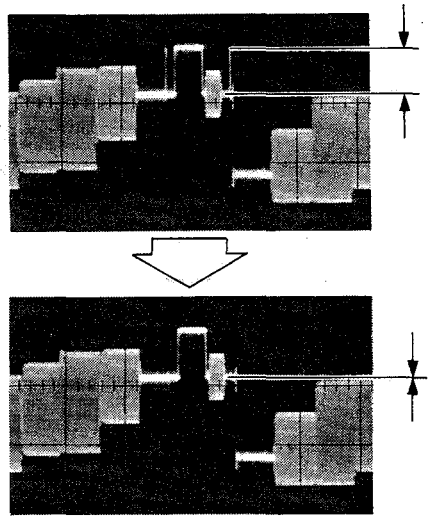
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • DSK KEY LEVEL control: Fully clockwise ↻ • PST bus selection button: "1" • PGM/PST switch: "PGM" • PGM/PST lever: Mechanical center	Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
	TP38/ EF-13  B = A	◐ RV36/EF-13 TRIG: Pin 74 on extension board

Note: When this adjustment is completed, disconnect the cable from the DSK KEY terminal on the rear panel and reconnect it to the DSK INSERT IN terminal on the rear panel.

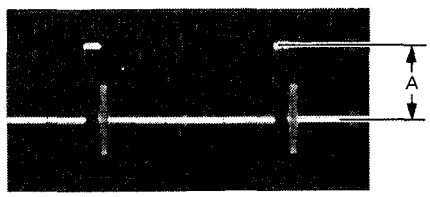
6-39. DSK CM GAIN and CLAMP Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Mechanical center • PGM CUT IN/OUT button: ON • DSK KEY LEVEL control: Fully counterclockwise ↺	1. Pin 91 on extension board  • Measure level "A".	TRIG: Pin 74 on extension board
	2. TP38/ EF-13  B = A	◐ RV37/EF-13 TRIG: Pin 74 on extension board
	3. TP38/ EF-13 	◐ RV34/EF-13 TRIG: Pin 74 on extension board

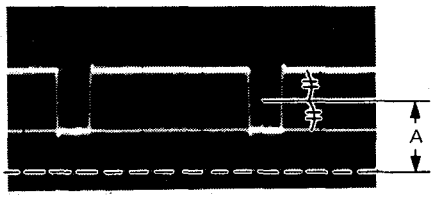
6-40. DSK Balance Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Mechanical center • PGM CUT IN/OUT button: ON • DSK KEY LEVEL control: Fully counterclockwise ↺	TP38/ EF-13 	◐ RV35/EF-13 TRIG: Pin 74 on extension board

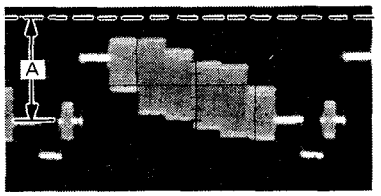
6-41. PST bus BLACK BURST SYNC LEVEL Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	TP37/EF-13  [For SEG-2550A] A = 290 ± 5 mV [For SEG-2550AP/APM] A = 300 ± 5 mV	◐ RV53/EF-13 TRIG: Pin 74 on extension board

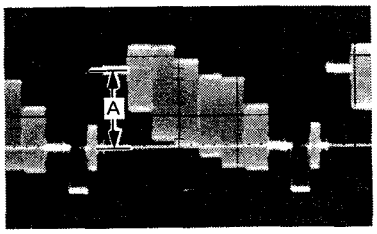
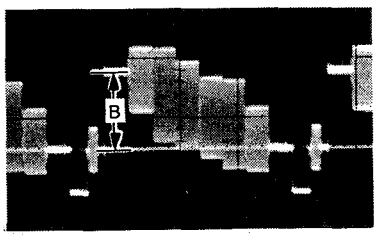
6-42. PST bus BLKG DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	TP36/ EF-13  A = 2.0 ± 0.1 V dc	◐ RV39/EF-13 TRIG: Pin 74 on extension board

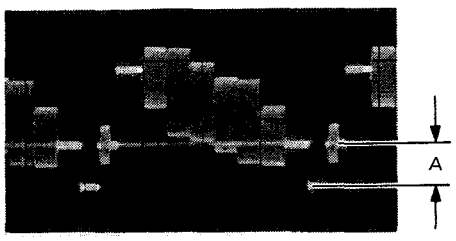
6-43. Temporary PST bus PHASE SHIFT DC Adjustment 2

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Mechanical center	TP56/EF-13  A = −1.5 ± 0.1 V dc	◐ RV52/EF-13 TRIG: Pin 74 on extension board

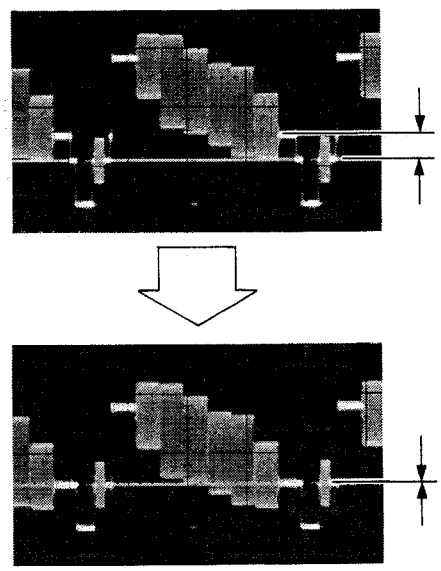
6-44. PST bus VIDEO Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board	Pin 91 on extension board 	TRIG: Pin 74 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Mechanical center	TP56/EF-13  B = A	◐ RV42 [PST VIDEO] /EF-13 TRIG: Pin 74 on extension board

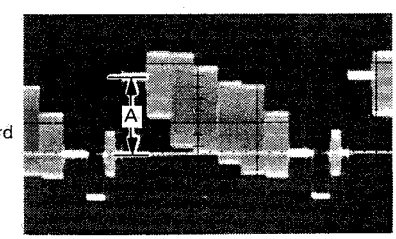
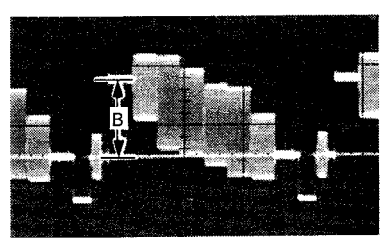
6-45. PST bus SYNC Gain Adjustment

Status at adjustment	*Measurement point and specification*	Adjustment point
• Board extension: EF-13 board • PGM/PST siwtch: PGM • PST bus selection button: 1 • PGM/PST lever: Mechanical center	TP56/EF-13  [For SEG-2550A] A = 290 ± 5 mV [For SEG-2550AP/APM] A = 300 ± 5 mV	◐ RV43/EF-13 TRIG: Pin 74 on extension board

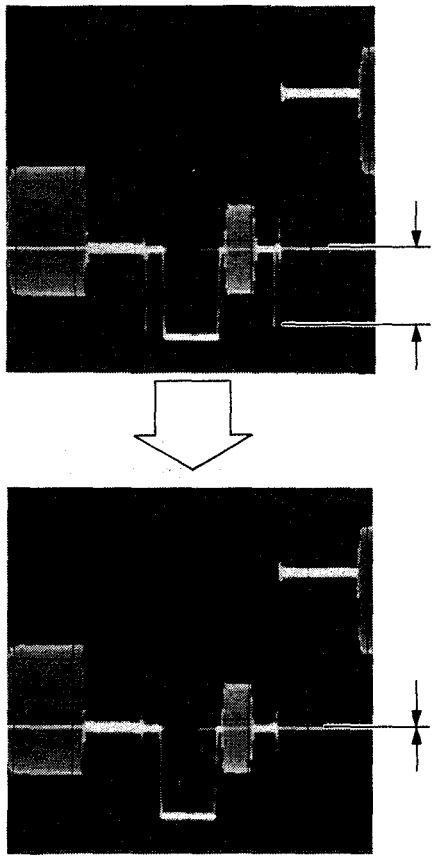
6-46. PST bus SET UP Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Mechanical center	TP56/ EF-13 	◐ RV40 PST SET UP /EF-13 TRIG: Pin 74 on extension board

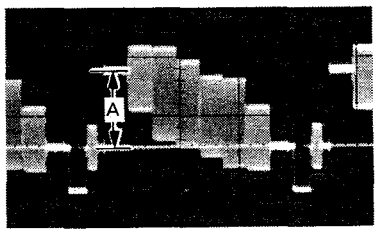
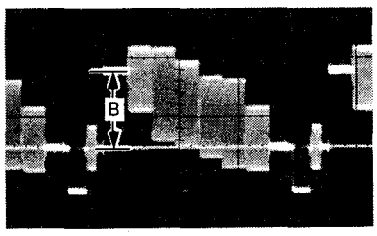
6-47. PST bus VIDEO LEVEL Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Mechanical center	• Terminate PST OUT 1 on the rear panel with 75 Ω. (Do not connect anything to PST OUT 2 and PST OUT 3.) Pin 91 on extension board 	TRIG: Pin 74 on extension board
	TP39/ EF-13  B = A	◐ RV44/EF-13 TRIG: Pin 74 on extension board

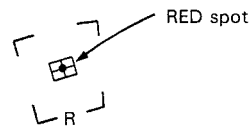
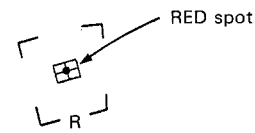
6-48. PST bus BURST Balance Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Mechanical center	TP39/ EF-13 	◐ RV41/EF-13 TRIG: Pin 74 on extension board

6-49. PGM/PST EFFECT Balance Adjustment

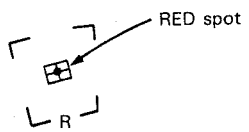
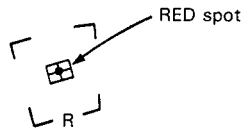
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" ↓ • PST bus selection button: "BACKGROUND" ↓ • PST bus BACKGROUND switch: "BLK" ↓ • PGM/PST switch: "PST" ↓ • PST bus selection button: "1" ↓ • PGM CUT IN/OUT button: "OFF"	1. TP28/ EF-13  A = 320 ± 10 mV	◐ PGM/PST lever on control panel TRIG: Pin 74 on extension board
	2. TP39/ EF-13  B = 320 ± 10 mV	◐ RV47/EF-13 TRIG: Pin 74 on extension board

6-50. PGM B bus Chroma Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • Abus selection button: "1" • EFF lever: Uppermost position • PGM/PST lever: Lowermost position	1. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	PHASE control and GAIN control on vectorscope [For SEG-2550AP/APM] Push the PAL button of vectorscope.
• B bus selection button: "1" • EFF lever: Lowermost position	2. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	◐ CV1/EF-13

Note: When this adjustment is completed, perform the PGM (A to D) bus chroma adjustment of Section 6-51.

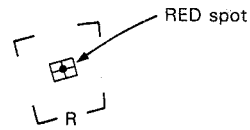
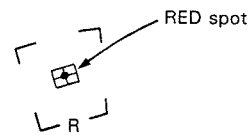
6-51. PGM (A to D) bus Chroma Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • PGM/PST lever: Uppermost position • A bus selection button: "1" • EFF lever: Uppermost position [For SEG-2550AP/APM] Push the PAL button of vectorscope.	1. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	◐ CV5/EF-13
	2. If the specification is not met in step 1, use ◐ CV5 to adjust the bright spot to a position close to the specification position, then use the PHASE control of the vectorscope to adjust it to the central vertical line of the specification frame. (If the specification is met in step 1, step 3 is not necessary.)	
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • PGM/PST lever: Uppermost position • A bus selection button: "1" • EFF lever: Uppermost position	3. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	◐ CV6/EF-13

Note: When this adjustment is completed, perform the PGM C/D bus chroma adjustment of Section 6-52.

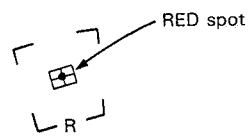
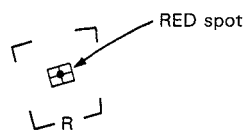
6-52. PGM C/D bus Chroma Adjustment

Note: The PGM (A to D) bus chroma adjustment of Section 6-51 must be completed before this adjustment.

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position [For SEG-2550AP/APM] Push the PAL button of vectorscope.	1. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	◐ CV3/EF-13
• PGM/PST switch: "PGM" • PST bus selection buton: "1" • PGM/PST lever: Uppermost position	2. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	◐ CV4/EF-13

6-53. PST OUT Chroma Adjustment

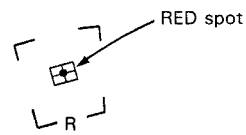
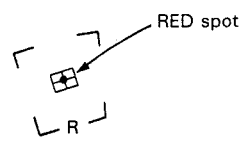
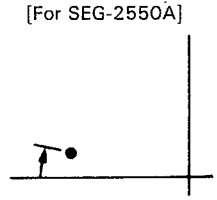
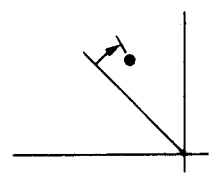
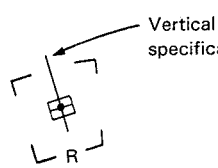
Note: The PGM (C/D) bus chroma adjustment of Section 6-52 must be completed before this adjustment.

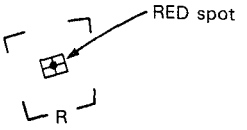
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension EF-13 board Disconnect the cable from PGM OUT 1 on the rear panel, and connect it to PST OUT 1 on the rear panel. • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • PGM/PST lever: Lowermost position • A bus selection button: "1" • EFF lever: Uppermost position	1. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	PHASE control and GAIN control on vectorscope [For SEG-2550AP/APM] Push the PAL button of vectorscope.
• PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Uppermost position	2. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame. 	◐ CV8/EF-13

Note: When this adjustment is completed, perform the PGM HUE adjustment of Section 6-54.

6-54. PGM HUE Adjustment

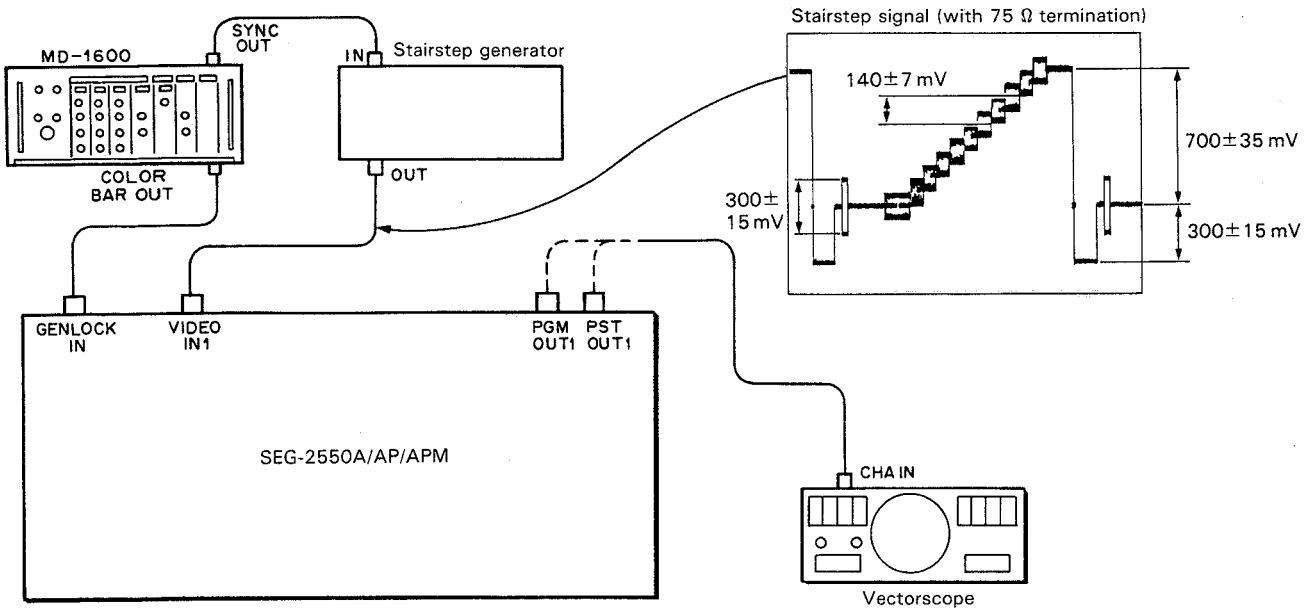
Note: The PST OUT chroma adjustment of Section 6-53 must be completed before this adjustment.

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • PGM CUT IN/OUT button: "OFF" • EFF lever: Uppermost position • PGM/PST lever: Lowermost position [For SEG-2550A/AP/APM] Push the PAL button of vectorscope.	1. Disconnect the cable from the PST OUT 1 terminal on the rear panel, and connect it to the PGM OUT 1 terminal on the rear panel.	
	2. Turn ◐ RV51 and ◐ RV54 on the EF-13 fully counterclockwise ↺.	
	3. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame.  	PHASE control and GAIN control on vectorscope
	4. Adjust so that the BURST bright spot is at the 75% position on the vectorscope screen.	PHASE control on vectorscope
	5. Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame.  	◐ RV1 SC PHASE /SD-17 (If the specification is not met, move the SC 0°/180° switch on the SD-17, and adjust again.)
	6. Adjust so that the BURST bright spot is at a position −15±2° from the 75% position on the vectorscope screen. [For SEG-2550A]  [For SEG-2550AP/APM] 	PHASE control on vectorscope
	7. Adjust so that the bright spot of the RED color bar is on the vertical line within the vectorscope frame.  	◐ RV51/EF-13

Status at adjustment	Measurement point and specification	Adjustment point
	8.Perform steps 4 and 5 again.	
	9.Disconnect the cable from the PGM OUT 1 terminal on the rear panel, and connect it to the PST OUT 1 terminal on the rear panel.	
	10.Adjust so that the BURST bright spot is at the 75% position on the vectorscope screen.	PHASE control on vectorscope
	11.Adjust so that the bright spot of the RED color bar is at the center of the vectorscope frame.  	◐RV54/EF-13

6-55. DG and DP Adjustment

[Instrumentation/connection diagram]



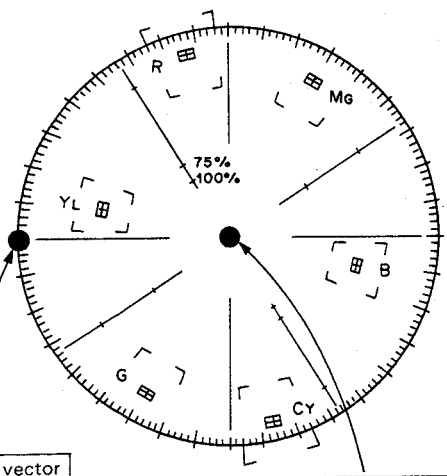
[DG and DP measurement method]

1. DG (DIEF GAIN) measurement

Step 1. Vectorscope settings

- Pushing button: CHB, FULL FIELD, Aϕ, LINE SWEEP.
- Set CHB 100%/75%/MAX GAIN to MAX GAIN.

Step 2. Preliminary setting for DG measurement



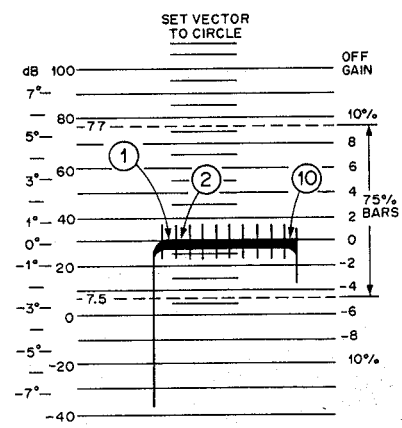
a. Use "A PHASE" of the vectorscope to move the start point of the staircase vector to the 180° line.

b. Use "CHA GAIN" of the vectorscope to move the start point to the periphery.

Use "VERT POSITION CLAMP" and "HORIZ POSITION CLAMP" of the vectorscope to move the start point to the center.

Step 3. DG measurement

- After step 2, press the DIFF GAIN button on the vectorscope.



a. Move point ① to the 0% tick of DIFF GAIN.

b. Using point ① as a standared, measure points ② to ⑩.

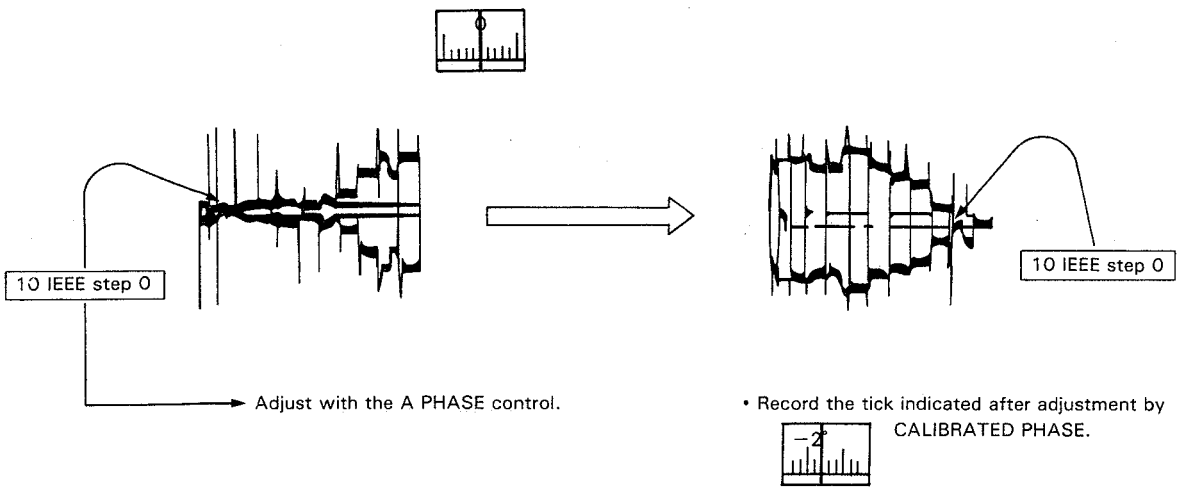
Note: This waveform shows the status at which DG is "0".

2. DP (DIFF PHASE) measurement

Step 1. Vectorscope settings

- Pushing button: CHA, FULL, FIELD, Aϕ, DIFF PHASE.
- Set DIFF PHASE SINGLE/DOUBLE to DOUBLE.
- Set CHA 100%/75%/MAX GAIN to MAX GAIN.
- Set CHA GAIN control to CAL.

Step 2. DP measurement


10 IEEE step 0
10 IEEE step 0
Adjust with the A PHASE control.
• Record the tick indicated after adjustment by CALIBRATED PHASE.

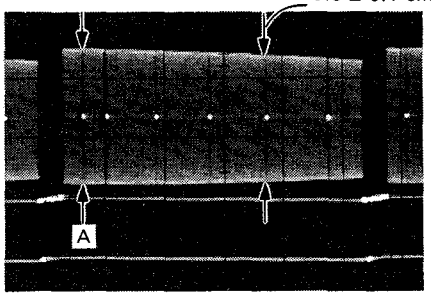
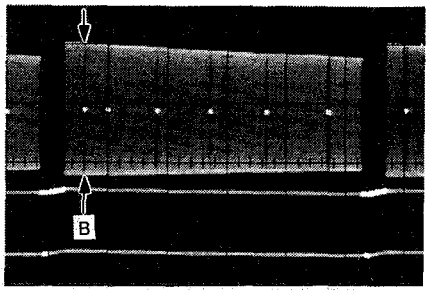
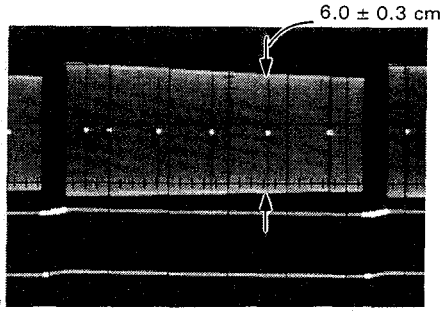
[PGM bus DG and DP adjustment]

Status at adjustment	Measurement point and specification	Adjustment point
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • MIX button of EFFECTS SELECT: "ON"	PGM OUT 2 on rear panel APL / DG / DP 10% / 1% or less / 1° or less 90% / 1% or less / 1° or less The specification must be satisfied for all three of these settings. • EFF lever: Upper; PGM/PST lever: Lower • EFF lever: Lower; PGM/PST lever: Lower • EFF lever: Upper; PGM/PST lever: Upper	◐ RV49/EF-13

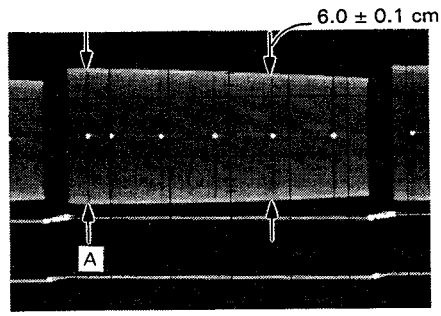
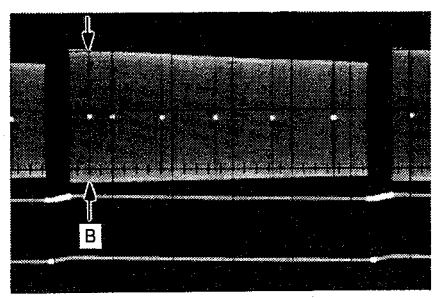
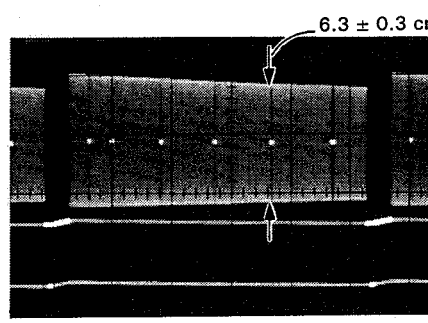
[PST bus DG and DP adjustment]

Status at adjustment	Measurement point and specification	Adjustment point
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "1" • MIX button of EFFECTS SELECT: ON	PST OUT 2 on rear panel APL / DG / DP 10% / 1% or less / 1° or less 90% / 1% or less / 1° or less The specification must be satisfied for all three of these settings. • EFF lever: Upper; PGM/PST lever: Lower • EFF lever: Lower; PGM/PST lever: Lower • EFF lever: Upper; PGM/PST lever: Upper	◐ RV52/EF-13

6-56. PGM bus Frequency Characteristic Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • EFF lever: Uppermost position • PGM/PST lever: Lowermost position	1. Adjust the amplitude at 8 MHz of the waveform of VIDEO OUT 1 on the rear panel (75 Ω termination) to 6.0 ±0.1 cm. Measure level A of the amplitude at 1 MHz at the same time. 6.0 ± 0.1 cm VIDEO OUT 1  	VAR control of VOLTS/DIV on Oscilloscope
	2. Adjust so that level B of the amplitude at 1 MHz of the waveform of the PGM OUT 1 on the rear panel (75 Ω termination) is equal to level A of step 1. PGM OUT 1  	VAR control of VOLTS/DIV on Oscilloscope
	3. Adjust so that the amplitude at 8 MHz of the waveform of PGM OUT 1 on the rear panel is 6.0 ±0.3 cm. 6.0 ± 0.3 cm PGM OUT 1 	◐ CV11/EF-13

6-57. PST bus Frequency Characteristic Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: EF-13 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • EFF lever: Uppermost position • PGM/PST lever: Lowermost position	1. Adjust the amplitude at 8 MHz of the waveform of VIDEO OUT 1 on the rear panel (75 Ω termination) to 6.0 ±0.1 cm. Measure level A of the amplitude at 1 MHz at the same time. 	VAR control of VOLTS/DIV on Oscilloscope
	2. Adjust so that level B of the amplitude at 1 MHz of the waveform of PST OUT 1 on the rear panel (75 Ω termination) is equal to level A of step 1. 	VAR control of VOLTS/DIV on Oscilloscope
	3. Adjust so that the amplitude at 8 MHz of the waveform of PST OUT 1 on the rear panel (75 Ω termination) is 6.3 ±0.3 cm. 	◐ CV12/EF-13

Note: After completing the EFFECT system adjustment, connect the measurement point to PGM OUT 1 on the rear panel and perform the following adjustments:

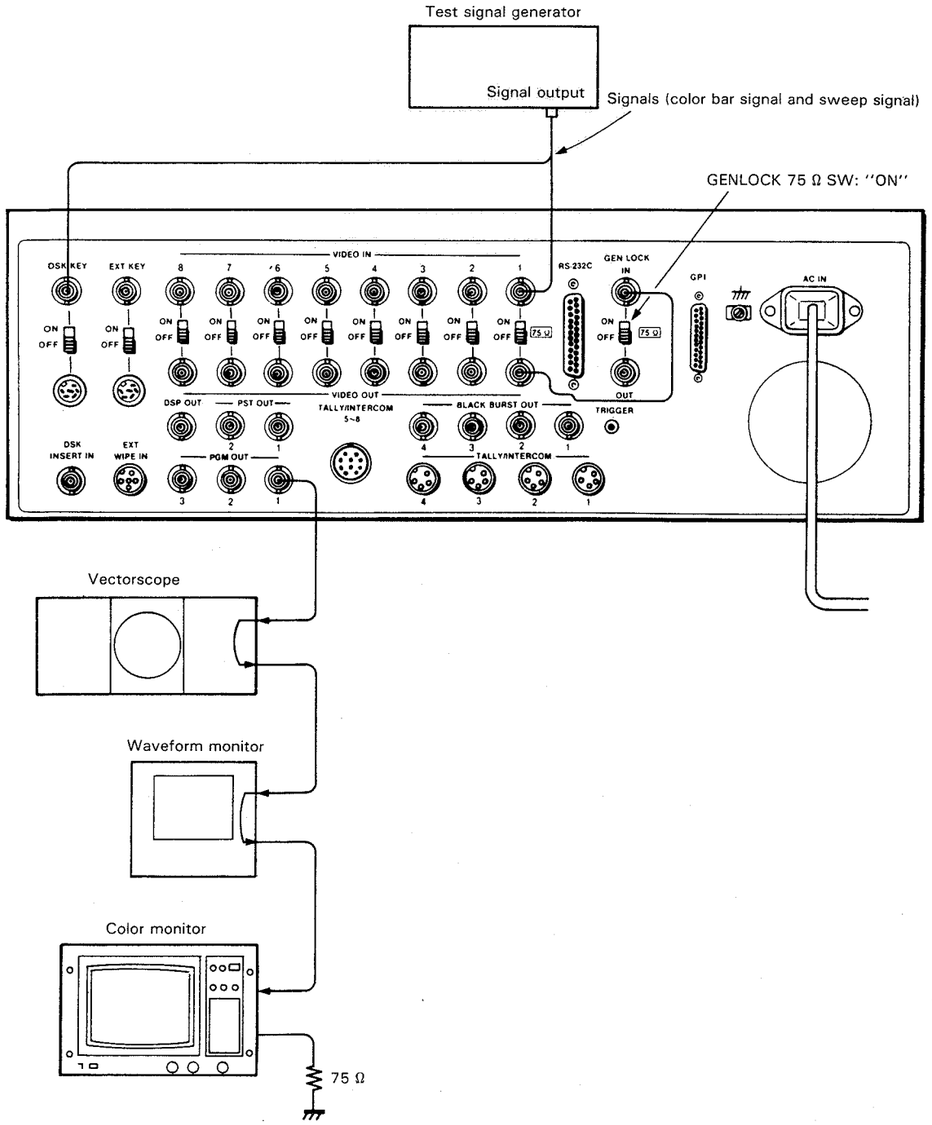
4-4. SYNC Waveform Adjustment
〜
4-7. SYNC level adjustment

SECTION 7
DOWNSTREAM KEYER SYSTEM ADJUSTMENT

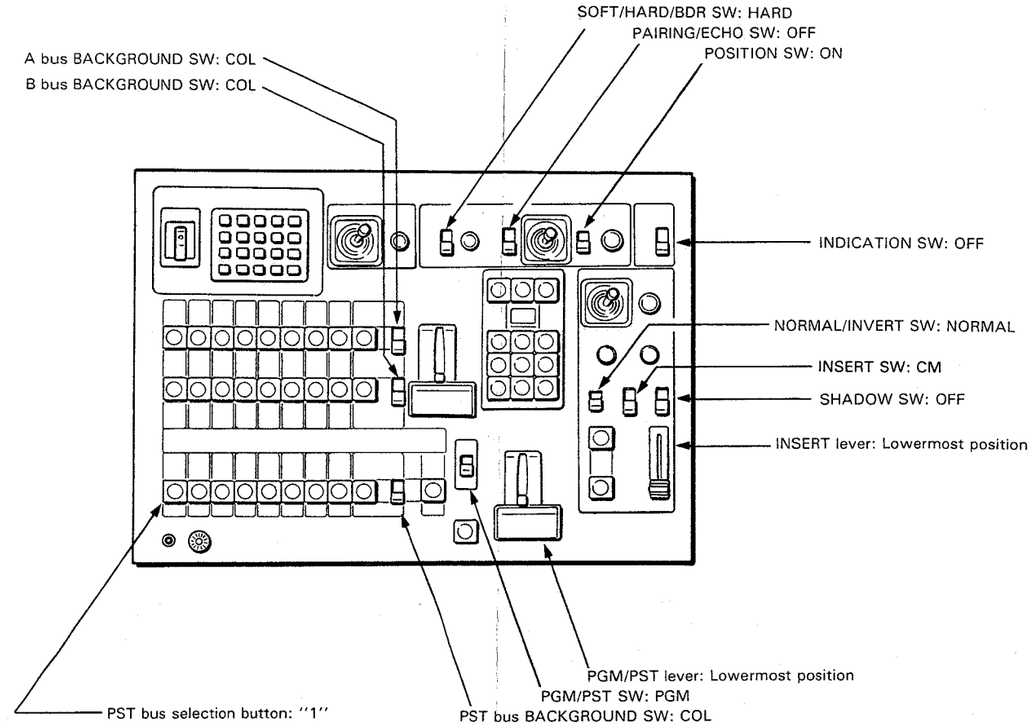
[Instruments]
- Oscilloscope
- Vectorscope
- Waveform monitor
- Test signal generator (signals: color bar signal and sweep signal)
- Black-and-white video camera

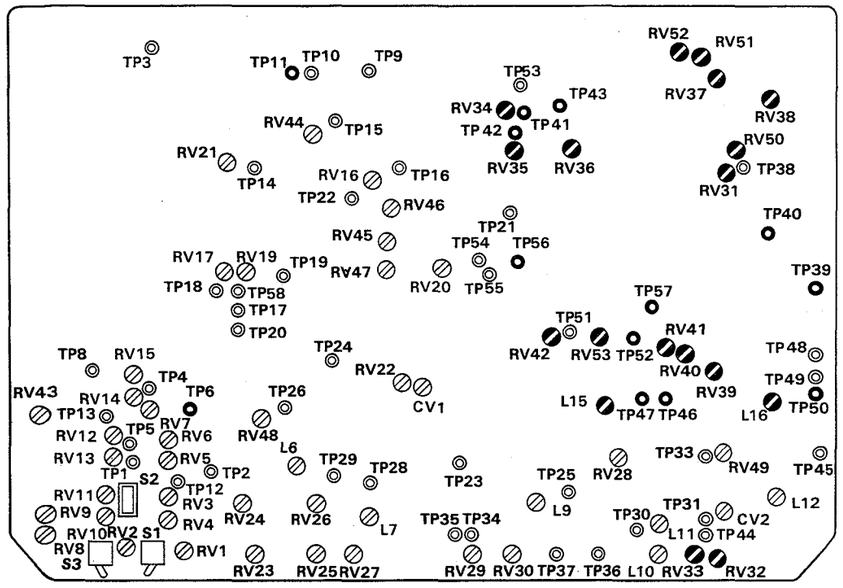
[Jigs]
- Extension board EX-82/83 (SONY Part number J-6028-910-A)

[Connection diagram]



[Switch settings before adjustment]

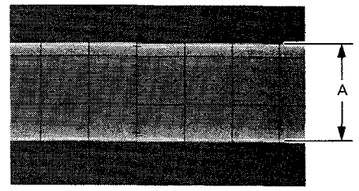
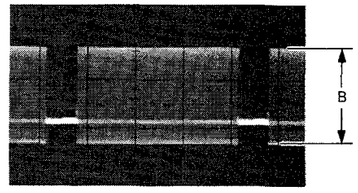




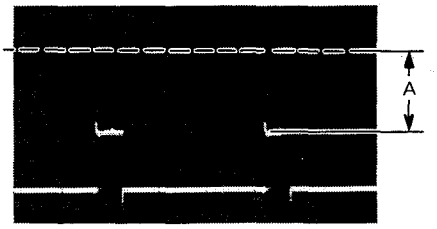
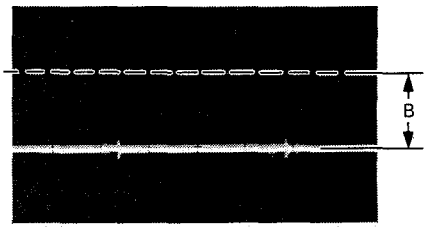
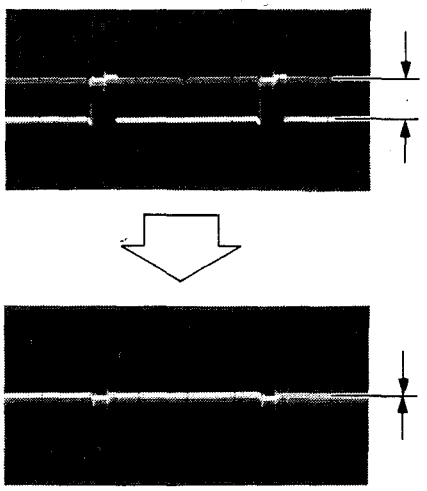
SD-17 Board (Component Side)

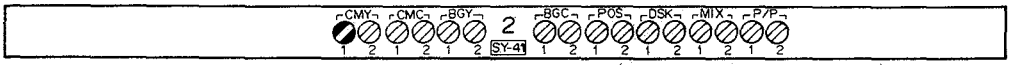
※GND:TP56

7-1. DSK Replacement Amplifier CM Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • INSERT switch: "CM"	TP57/ SD-17  A = 700 ± 10 mV	DSK COLOR MATT joystick on control panel
Settings of switches on control panel • PGM CUT IN/OUT button: ON (lit) • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	TP72 on extension board  B = 700 ± 10 mV	◐ RV40/SD-17

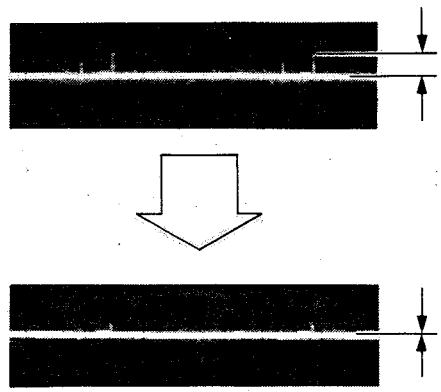
7-2. DSK Replacement Amplifier LUM Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM CUT IN/OUT button: OFF • DSK INSERT switch: "B/W" • DSK LUM control: Fully counterclockwise ↺ • PGM/PST switch: "PGM" • PST bus selection button: "1" • PGM/PST lever: Lowermost position	1. GND TP52/ SD-17  GND TP57/ SD-17  A = B	◐RV16 CMY-1 /SY-41 TRIG: HD (TP11/SD-17)
	2. TP50/ SD-17 	◐RV41/SD-17 TRIG: HD (TP11/SD-17)



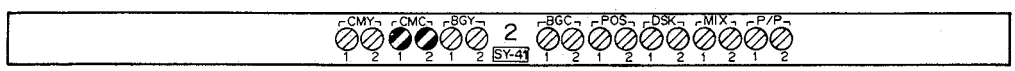
SY-41 Board (Component Side)

7-3. DSK CM Replacement Balance Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM CUT IN/OUT button: ON • DSK INSERT switch: "B/W" • DSK LUM control: Fully counterclockwise ↺	TP50/ SD-17 	◐ RV42/SD-17 TRIG: HD (TP11/SD-17)

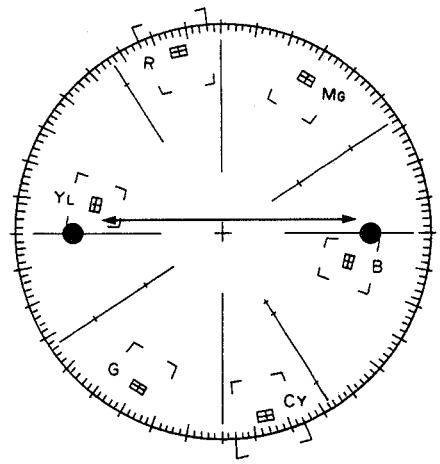
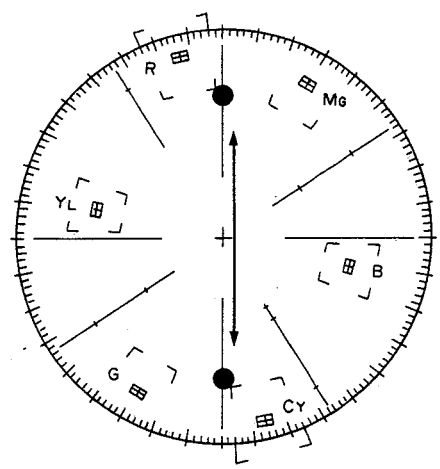
7-4. DSK Color Difference DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
Move the DSK COLOR MATT joystick on the control panel to the far left.	TP46 (GND: TP56)/SD-17, −300 ± 10 mV dc	◐ RV15 CMC-1 /SY-41
Move the DSK COLOR MATT switch on the control panel to the far right.	TP46 (GND: TP56)/SD-17, +300 ± 10 mV dc	◐ RV7 CMC-2 /SY-41

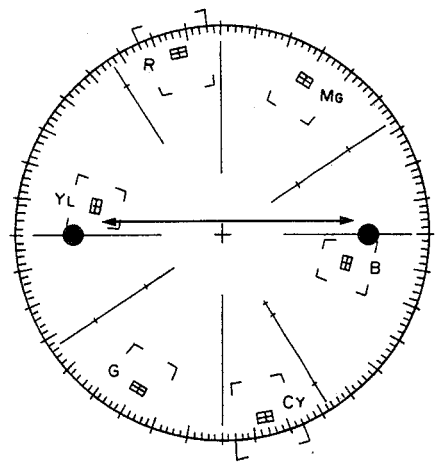
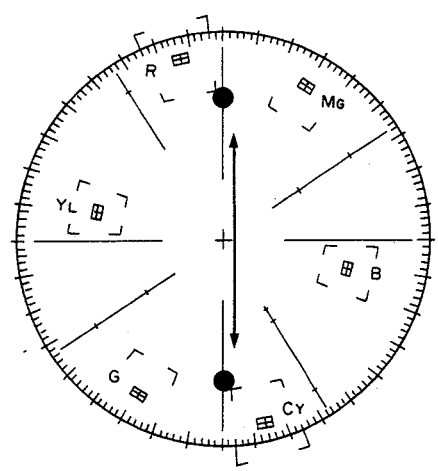


SY-41 Board (Component Side)

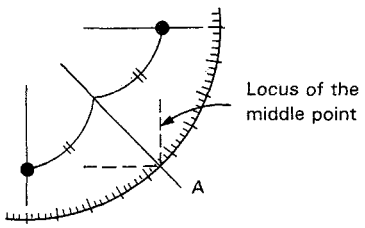
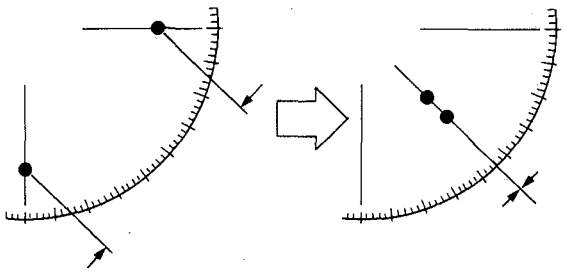
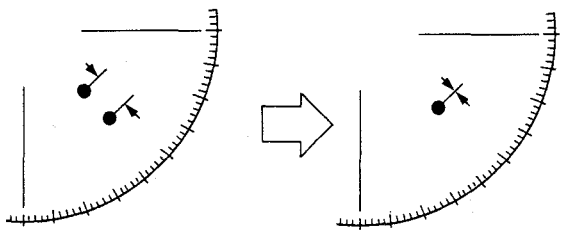
7-5. DSK CM 90° Shift Adjustment [For SEG-2550A]

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "WHT" • INSERT/PGM lever: Uppermost position • PGM CUT IN/OUT button: ON • DSK INSERT switch: "CM" • DSK KEY LEVEL control: Fully counterclockwise ↺ • Adjust the PHASE and GAIN controls of the vectorscope so that the BURST spot is at the 75% position.	1. Jumper TP56 and TP47 on SD-17.	
	2. Adjust so that the bright spot on the vectorscope screen moves parallel to the horizontal axis when the DSK COLOR MATT joystick on the control panel is moved left and right.  	◐L16/SD-17
	3. Disconnect the jumper between TP56 and TP47 on SD-17, and jumper TP56 and TP46 on SD-17 by a lead wire.	
	4. Adjust so that the bright spot on the vectorscope screen moves parallel to the vertical axis when the DSK COLOR MATT joystick on the control panel is moved up and down.  	◐L15/SD-17
	5. Disconnect the jumper between TP56 and TP46 on SD-17.	

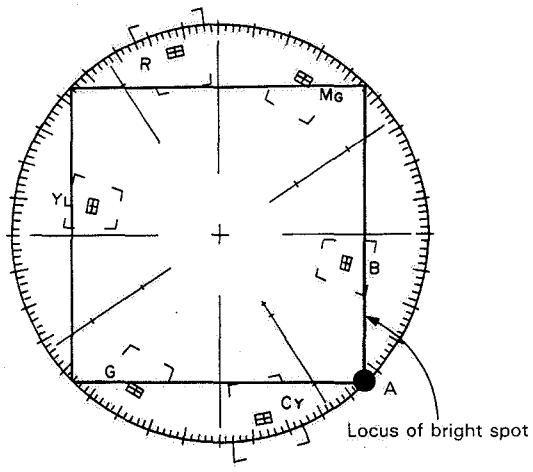
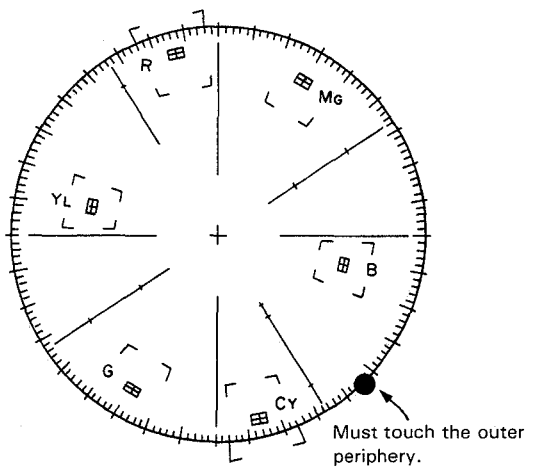
7-5. DSK CM 90° Shift Adjustment [For SEG-2550A]

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "WHT" • INSERT/PGM lever: Uppermost position • PGM CUT IN/OUT button: ON • DSK INSERT switch: "CM" • DSK KEY LEVEL control: Fully counterclockwise ↺ • Adjust the PHASE and GAIN controls of the vectorscope so that the BURST spot is at the 75% position.	1. Jumper TP56 and TP47 on SD-17.	
	2. Adjust so that the bright spot on the vectorscope screen moves parallel to the horizontal axis when the DSK COLOR MATT joystick on the control panel is moved left and right.  	◐L16/SD-17
	3. Disconnect the jumper between TP56 and TP47 on SD-17, and jumper TP56 and TP46 on SD-17 by a lead wire.	
	4. Adjust so that the bright spot on the vectorscope screen moves parallel to the vertical axis when the DSK COLOR MATT joystick on the control panel is moved up and down.  	◐L15/SD-17
	5. Disconnect the jumper between TP56 and TP46 on SD-17.	

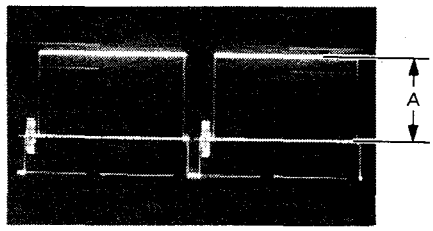
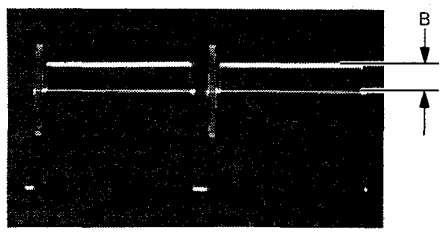
7-6. DSK CM 90° Shift Adjustment [For SEG-2550AP/APM]

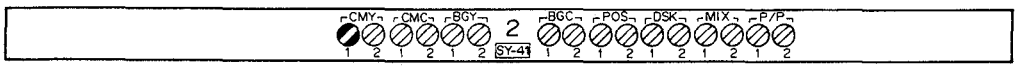
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "WHT" • INSERT/PGM lever: Uppermost position • PGM CUT IN/OUT button: ON • DSK INSERT switch: "CM" • DSK KEY LEVEL control: Fully counterclockwise ↺ • Push the NTSC button on vectorscope. • Adjust the PHASE and GAIN controls of the vectorscope so that the BURST spot is at the 75% position.	1. Adjust so that the middle point of two DSK CM spots is at line "A" (bottom right corner of the locus of the middle point) on vectorscope screen.  	DSK CM joystick on control panel
	2. 	◐ L16/SD-17
	3. 	◐ L15/SD-17
	4. Repeat step 1 to 3 several times.	

7-7. DSK COLOR Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "COL" • PGM CUT IN/OUT button: ON • INSERT/PGM lever: Lowermost position • DSK INSERT switch: "CM" • DSK KEY LEVEL control: Fully counterclockwise ↺ • Adjust the PHASE and GAIN controls of the vectorscope so that the BURST spot is at the 75% position. [For SEG-2550AP/APM] Push the NTSC button on vectorscope.	1. Adjust so that the DSK CM spot is at position "A" (bottom right corner of the locus of the bright spot) on the vectorscope screen.  	COLOR MATT joystick on control panel
	2. Adjust so that the DSK CM spot touches the outer periphery of the standard frame of the vectorscope screen.  	◐RV39/SD-17

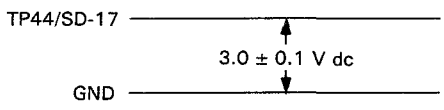
7-8. DSK CM Y Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• DSK EDGE control: Fully counterclockwise ↺ • DSK LUM control: Fully clockwise ↻ • DSK INSERT switch: "B/W" • INSERT/PGM Lever: Lowermost position • PGM CUT IN/OUT button: ON • DSK KEY LEVEL control: Fully counterclockwise ↺	PGM OUT 1  [For SEG-2550A] A = 100 $^{+0}_{-2}$ IRE [For SEG-2550AP/APM] A = 700 $^{+0}_{-10}$ mV	◐RV8 CMY-2 /SY-41
• DSK LUM control: Fully counterclockwise ↺	PGM OUT 1  [For SEG-2550A] B = 7.5 ± 2 IRE [For SEG-2550AP] B = 54 ± 10 mV [For SEG-2550APM] B = 50 ± 10 mV	◐RV16 CMY-1 /SY-41

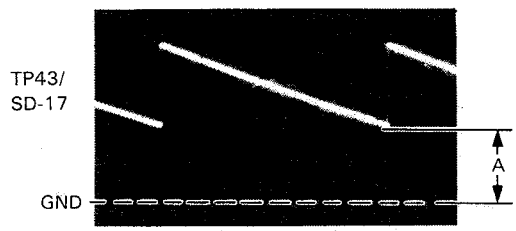


SY-41 Board (Component Side)

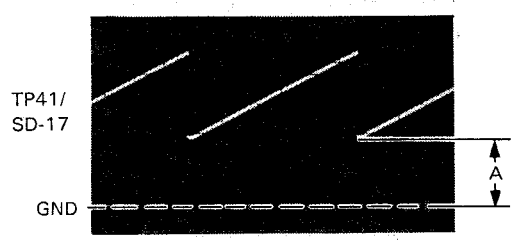
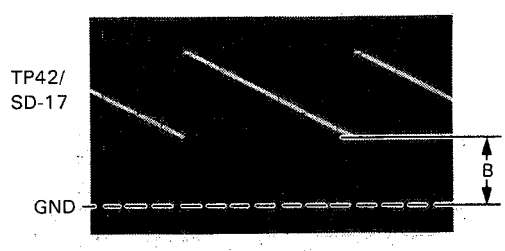
7-9. DSK MASK SLICE DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board	1. Turn ◐RV33 DSK MASK on SD-17 fully counterclockwise ↺.	
	2.  	◐RV32/SD-17

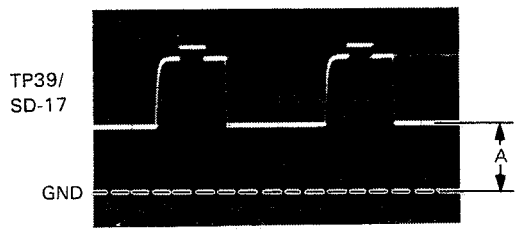
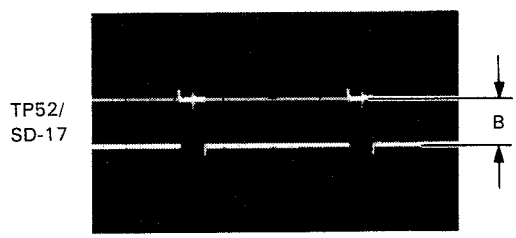
7-10. DSK MASK V Sawtooth Waveform Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board	 A = 3.4 ± 0.1 V dc	◐ RV36/SD-17 TRIG: Pin 17 on extension board

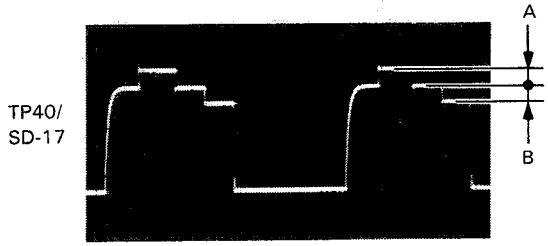
7-11. DSK MASK H Sawtooth Waveform Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board	 A = 3.4 ± 0.1 V dc	◐ RV34/SD-17 TRIG: HD (TP11/SD-17)
	 B = 3.4 ± 0.1 V dc	◐ RV35/SD-17 TRIG: HD (TP11/SD-17)

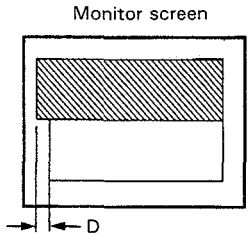
7-12. DSK SHADOW Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM CUT IN/OUT button: ON • ◐ RV33 [DSK MASK] / SD-17: Mechanical center • DSK KEY LEVEL: Fully counterclockwise ↺ • NORMAL/INVERT switch: "NORMAL" • Input the color bar signal to the DSK KEY IN terminal on the rear panel.	1.  A = 2.2 ± 0.2 V dc	◐ RV31/SD-17 TRIG: HD (TP11/SD-17)
	2.  B = 54 ± 5 mV	◐ RV53/SD-17 TRIG: HD (TP11/SD-17)

7-13. DSK PST KEY MASK Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PST CUT IN/OUT button: ON • NORMAL/INVERT switch: "NORMAL" • DSK KEY LEVEL control: Mechanical center	1. Turn ◐ RV33 on the SD-17 fully clockwise ↻.	
	2.  A = B	◐ RV50/SD-17 TRIG: HD (TP11/SD-17)

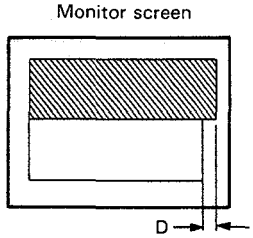
7-14. DSK Leading Edge Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "COL" • PGM/PST lever: Lowermost position • NORMAL/INVERT switch: "NORMAL" • DSK INVERT switch: "B/W" • PGM CUT IN/OUT button: ON • ◐ RV33 [DSK MASK] / SD-17: Fully clockwise ↻ • DSK KEY LEVEL: Mechanical center • SHADOW switch: "WIDE"	1. Change signal input to the DSK KEY terminal to the sweep signal.  D = 0 ± 1 mm	◐ RV51/SD-17
	2. Move the DSK NORMAL/INVERT switch to "INVERT", and repeat stop 1.	

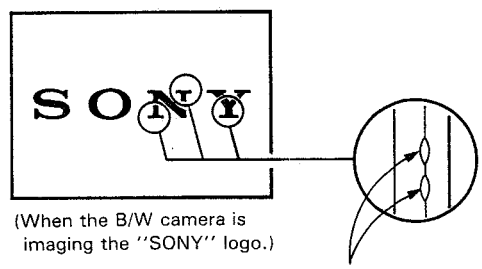
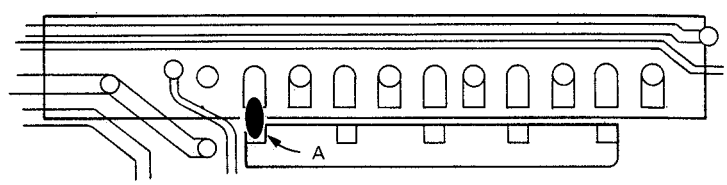
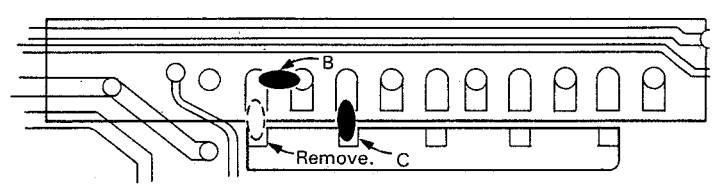
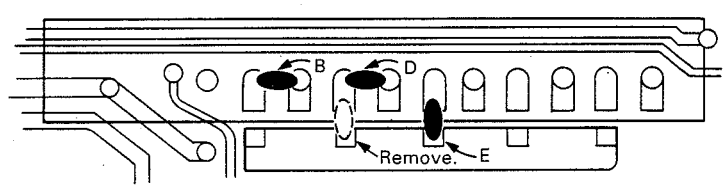
Note: When this adjustment is completed, perform the DSK trailing edge adjustment of Section 7-15.

7-15. DSK Trailing Edge Adjustment

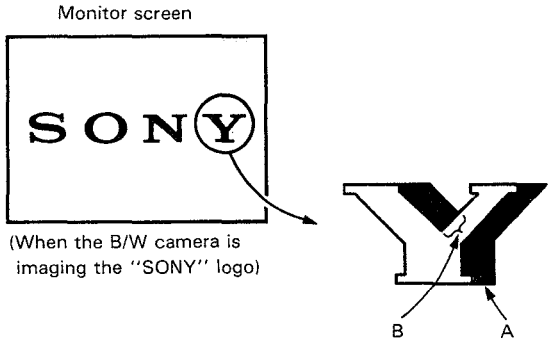
Note: The DSK leading edge adjustment of Section 7-14 must be completed before this adjustment.

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • NORMAL/INVERT switch: "NORMAL"	1.  D = 0 ± 1 mm	◐ RV52/SD-17
	2. Move the DSK NORMAL/INVERT switch on the control panel to "INVERT", and repeat step 1.	

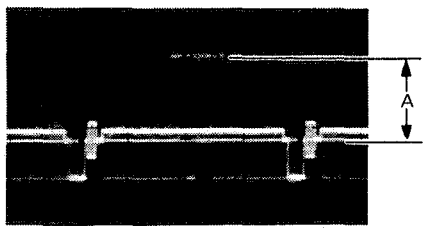
7-16. DSK KEY DELAY Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position •PGM CUT IN/OUT button: ON • NORMAL/INVERT switch: "NORMAL" • INSERT switch: "B/W" • DSK LUM control: Fully counterclockwise ↺ • SHADOW switch: "WIDE"	1. Connect the cable from the B/W camera to the DIN 6-pin terminal of DSK KEY (Do not connect anything to the BNC terminal of DSK KEY.	
	2. Monitor screen  (When the B/W camera is imaging the "SONY" logo.) There must be no gaps between the vertical lines of each character and its SHADOW. (No white parts.)	
	3. If the specification of step 2 is not met, perform the following steps 4 to 7.	
	4. Solder part A. SD-17 board (solder side, close to address B-3) DL1 	
	5. If the specification is still not met after step 4, remove the solder from part A and solder parts B and C. 	
	6. If the specification is still not met, remove the solder from part C and solder parts D and E. (Leave the solder on part B.) 	
	7. Repeat steps 4 to 6 and increase the DELAY amount.	

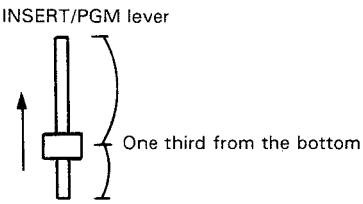
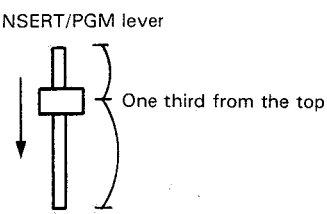
7-17. SHADOW KEY CM DELAY Adjustment

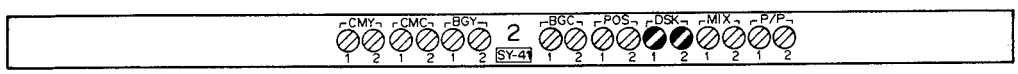
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • PGM/PST lever: lowermost position • PGM CUT IN/OUT button: ON • NORMAL/INVERT switch: "NORMAL" • DSK INSERT switch: "B/W" • DSK LUM control: Fully clockwise ↻ • SHADOW switch: "WIDE"	Adjust so that no white space appears in part "A" (SHADOW), and the SHADOW part "B" which overlaps the left edge of the character is at a minimum.  (When the B/W camera is imaging the "SONY" logo)	◐RV37/SD-17

7-18. IND/CHR Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • PGM/PST lever: Lowermost position • INDICATION switch: "DSP" (The message "WELCOME TO SEG-2550A" is displayed on the preset monitor screen.)	PST OUT2 on rear panel (75 Ω termination)  A = 600 ± 10 mV	◐RV38/SD-17

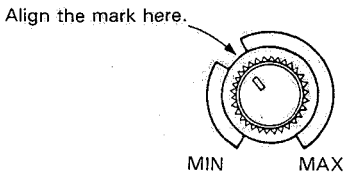
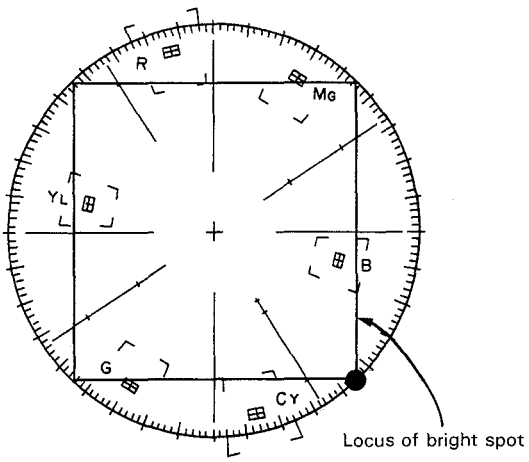
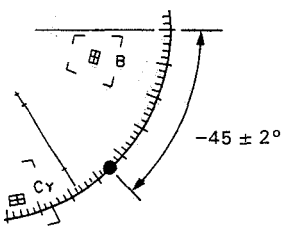
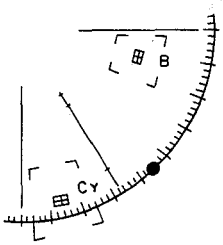
7-19. DSK INSERT Lever Adjustment 2

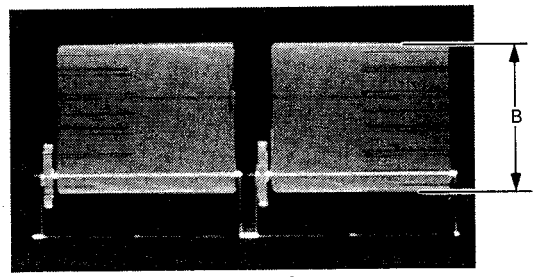
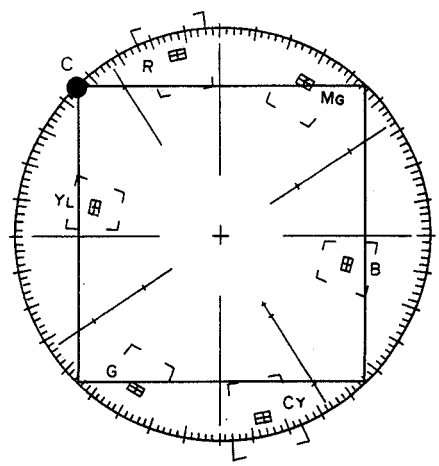
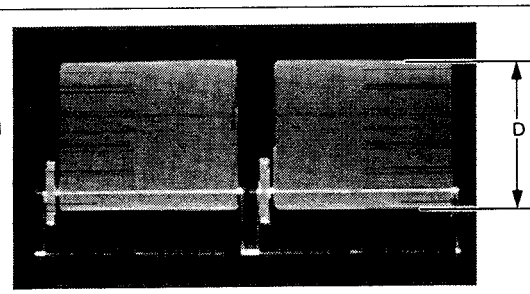
Status at adjustment	Measurement point and specification	Adjustment point
• PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • NORMAL/INVERT switch: "NORMAL" • PGM CUT IN/OUT button: OFF	1. Adjust so that the waveform on the waveform monitor's screen starts to change when the INSERT/PGM lever reaches a position one third from the bottom while moving upward. 	◐ RV3 DSK-2 /SY-41
	2. Adjust so that the waveform on the waveform monitor's screen starts to change when the INSERT/PGM lever on the control panel reaches a position one third from the top while moving downward. 	◐ RV11 DSK-1 /SY-41

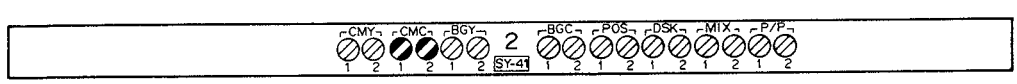


SY-41 Board (Component Side)

7-20. DSK CM HUE Adjustment

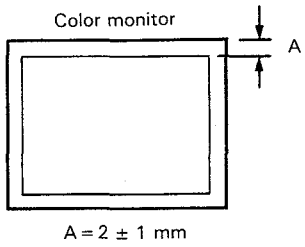
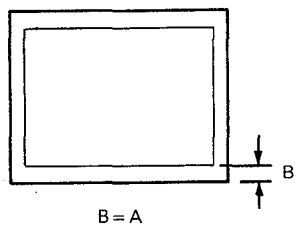
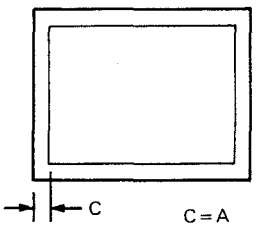
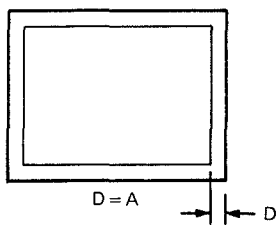
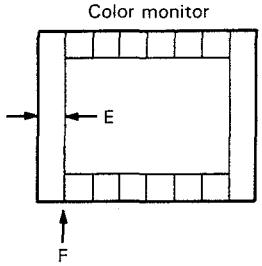
Status at adjustment	Measurement point and specification	Adjustment point
Settings of switches on the control panel • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "COL" • PGM/PST lever: Lowermost position • PGM CUT IN/OUT button: ON • DSK INSERT switch: "CM" • DSK KEY LEVEL control: Fully counterclockwise ↺ • The boards must not be extended. • Adjust the PHASE and GAIN controls of vectorscope so that the BURST spot is at the 75% position. [For SEG-2550AP/APM] Push the NTSC button on vectorscope.	1. Set the DSK LUM control on the control panel as shown below.  	
	2. Adjust so that the DSK CM spot is at point "A" (bottom right corner of the locus of the spot) on the vectorscope screen.  	DSK COLOR MATT joystick on control panel
	3. [For SEG-2550A] Adjust so that the phase of the bright spot located at "A" in step 2 is −45 ±2°.  [For SEG-2550AP/APM] Adjust so that the bright spot becomes a dot.  	◐ L16/SD-17 (Adjustment from the solder side of the SD-17 board.)

Status at adjustment	Measurement point and specification	Adjustment point
	4. PGM OUT 1  [For SEG-2550A] B = 99 ± 1 IRE [For SEG-2550AP/APM] B = 690 ± 10 mV	◐ RV7 CMC-2 /SY-41
	5. Adjust so that the DSK CM spot is at point C (top left corner of the locus of the spot) on the vectorscope screen.  	DSK COLOR MATT joystick on control panel
	6. PGM OUT 1  [For SEG-2550A] D = 99 ± 1 IRE [For SEG-2550AP/APM] D = 690 ± 10 mV	◐ RV15 CMC-1 /SY-41



SY-41 Board (Component Side)

7-21. DSK MASK Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board exension: SD-17 board • PGM CUT IN/OUT button: ON • PST CUT IN/OUT button: ON • NORMAL/INVERT switch: NORMAL • DSK INSERT switch: CM • DSK KEY LEVEL control: Fully counterclockwise ↺	1.  A = 2 ± 1 mm	◐RV33 DSK MASK /SD-17 (Adjust while looking at the program monitor and the preset monitor alternately.)
	2.  B = A	◐RV36/SD-17
	3.  C = A	◐RV34/SD-17
	4.  D = A	◐RV35/SD-17
• PGM/PST switch: PGM • PST bus selection button: 1 (VIDEO IN 1 input: Color bar signal)	5.  Match E to F	◐RV32/SD-17
	6. ◐RV33 DSK MASK on SD-17: Fully counterclockwise ↺	

SECTION 8
BACKGROUND SYSTEM ADJUSTMENT

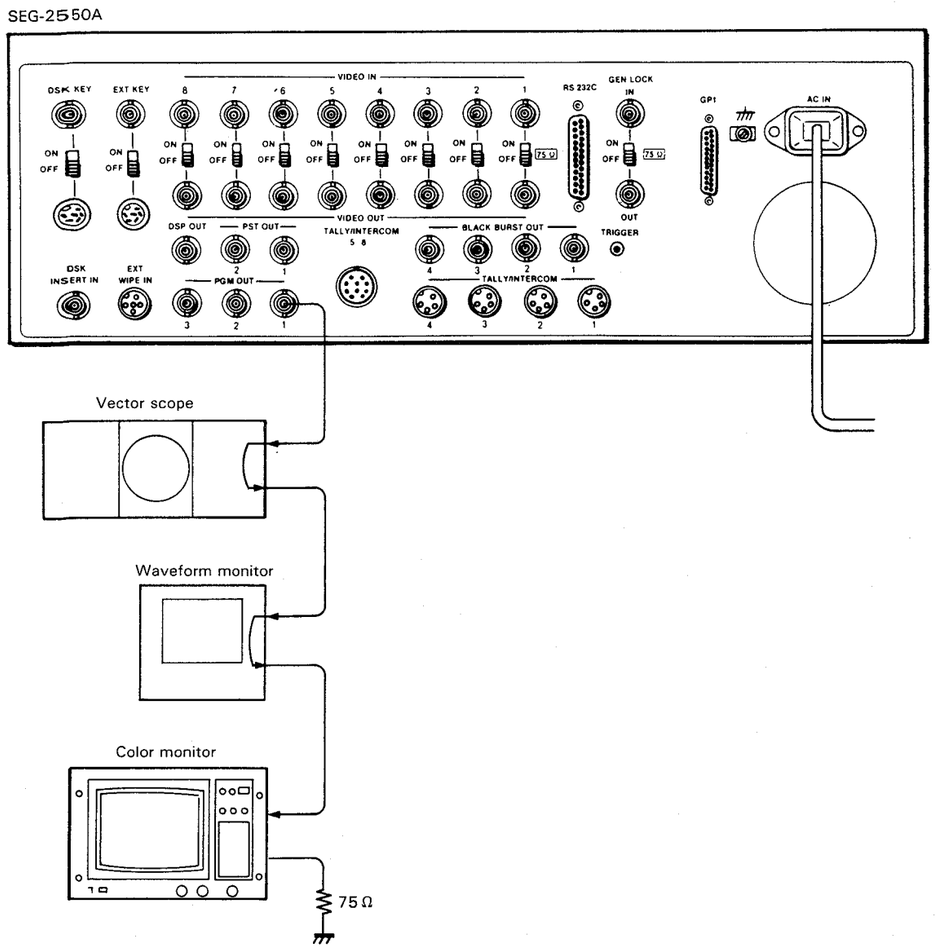
[Instruments]

- Oscilloscope
- Vectorscope
- Waveform monitor

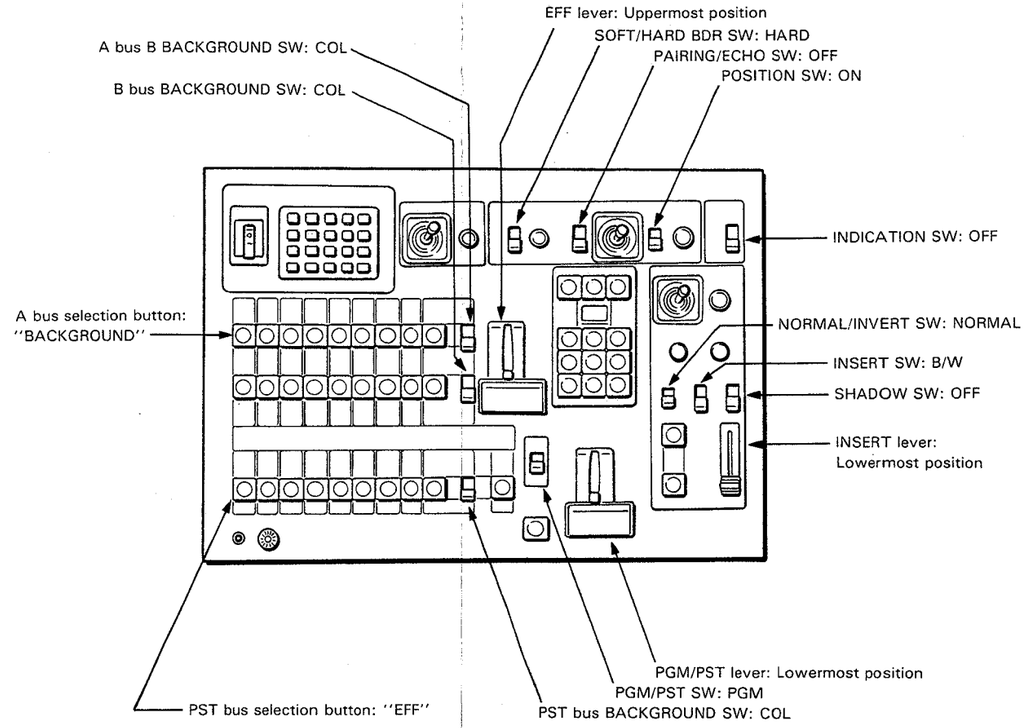
[Jigs]

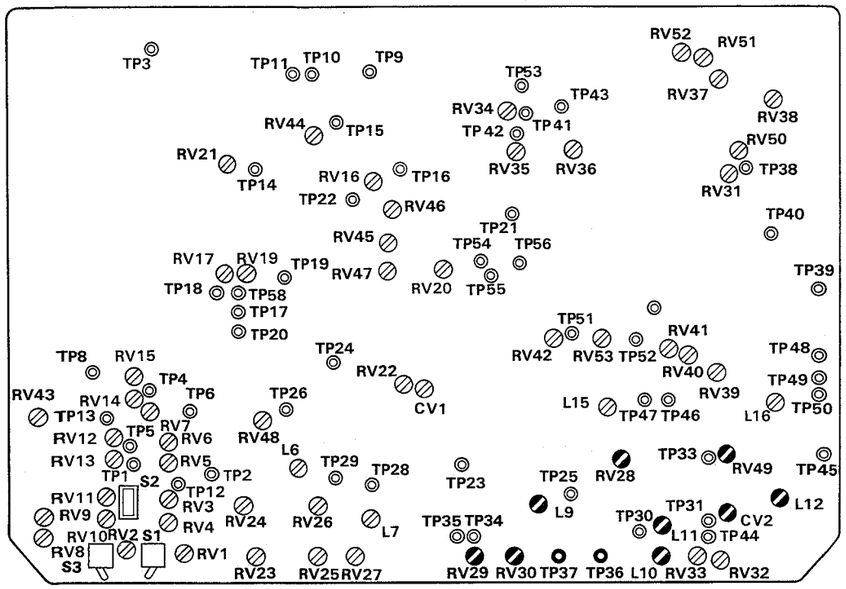
- Extension board EX-82/83 (SONY part number J-6028-910-A)

[Connection Diagram]



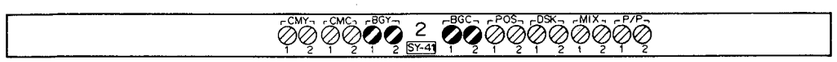
[Switch settings before adjustment]





SD-17 Board (Component Side)

※GND:TP56

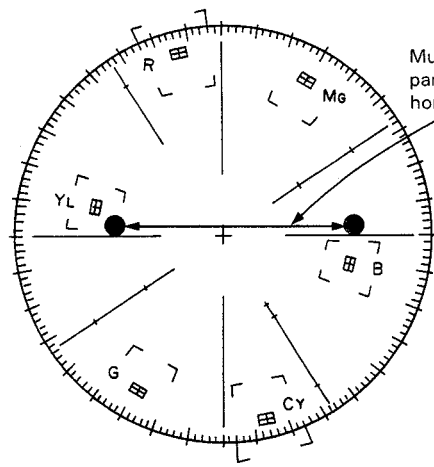
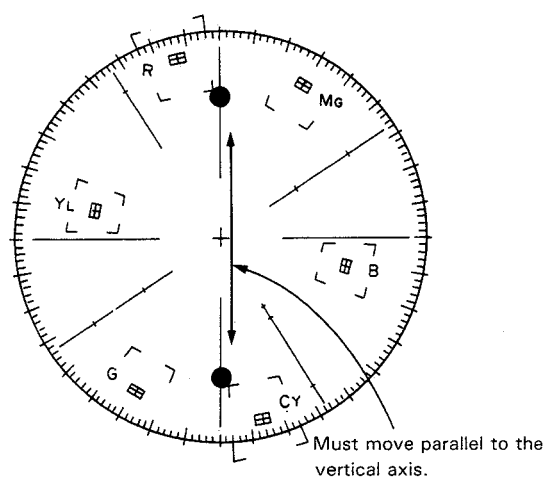


SY-41 Board (Component Side)

8-1. BACKGROUND Color Difference DC Adjustment

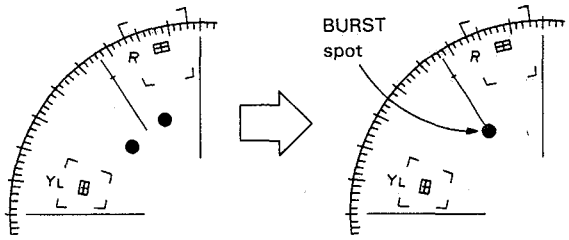
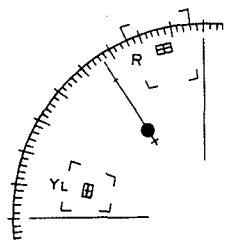
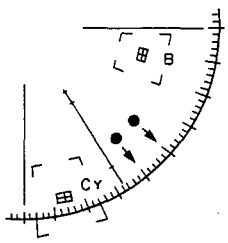
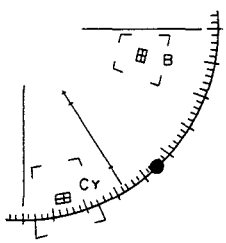
Status at adjustment	Measurement point and specification	Adjustment point
Move the BACKGROUND COLOR joystick on the control panel to its left end.	TP37(GND:TP56)/SD-17, +300±10 mV	RV5 BGC-2 /SY-41
Move the BACKGROUND COLOR joystick on the control panel to its right end.	TP37 (GND: TP56)/SD-17, −300±10mV	RV13 BGC-1 /SY-41

8-2. BACKGROUND CM 90° SHIFT Adjustment [For SEG-2550A]

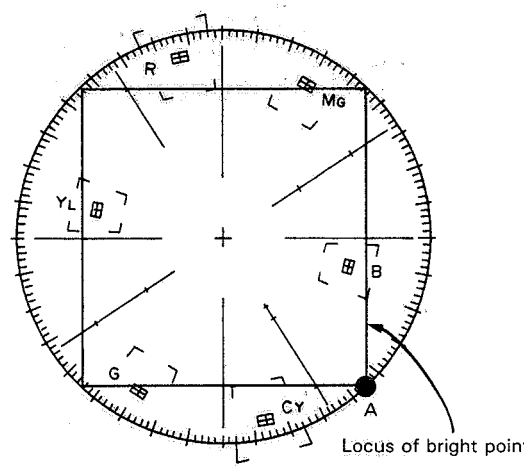
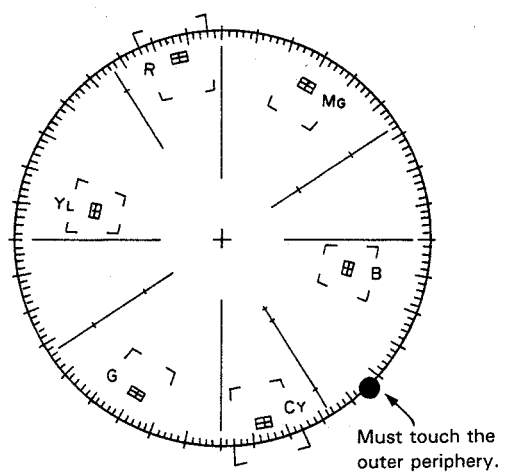
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "COL" • BACKGROUND COLOR LUM control: Fully counterclockwise ↺ • PGM CUT IN/OUT button: OFF • Adjust the PHASE and GAIN controls on the vectorscope so that the BURST spot is at the 75% position.	1. Jumper TP56 and TP36 on SD-17 with a lead wire.	
	2. Adjust so that the bright spot on the vectorscope moves parallel to the horizontal axis (B-Y axis) screen when the BACKGROUND COLOR joystick on the control panel is moved left and right.  	◐ L10/SD-17 ◐ L11/SD-17 (Adjust alternately)
	3. Disconnect the jumper between TP56 and TP36 on SD-17, then jumper TP56 and TP37 on SD-17.	
	4. Adjust so that the bright spot on the vectorscope screen moves parallel to the vertical axis (R-Y axis) when the BACKGROUND COLOR joystick on the control panel is moved up and down.  	◐ L9/SD-17

Note: When this adjustment is completed, disconnect the jumper between TP56/SD-17 and TP37/SD-17 boards.

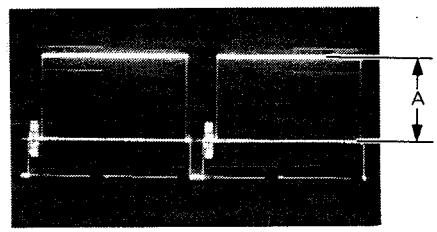
8-3. BACKGROUND CM 90° SHIFT Adjustment [For SEG-2550AP/APM]

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "COL" • BACKGROUND COLOR LUM control: counterclockwise ↺ • PGM CUT IN/OUT button: "OFF" • BACKGROUND COLOR joystick: *bottom right end* • Push the NTSC button on vectorscope.	1.  	PHASE control on Vectorscope.
	2. Adjust so that the BURST spot is at the 75% position on the vectorscope screen.  	GAIN control on Vectorscope
	3. Adjust so that the BACKGROUND spot approaches the outer periphery of the standard frame on vectorscope screen.  	◐ LV11/SD-17
	4. Adjust so that the BACKGROUND spot becomes a dot.  	◐ LV9, ◐ LV10/SD-17
	5. If the BACKGROUND spot is over the outer periphery of the standard frame on the vectorscope screen, adjust ◐ RV28/SD-17 board so that its spot touches the outer periphery of it. And repeat step 4.	

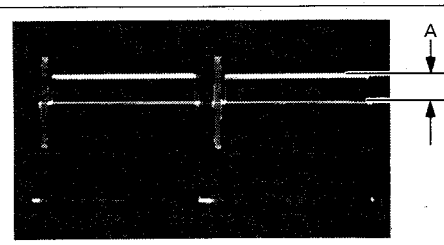
8-4. BACKGROUND Color Gain Adjustment

<table>
<tr><th>Status at adjustment</th><th>Measurement point and specification</th><th>Adjustment point</th></tr>
<tr><td rowspan="2">• Board extension: SD-17 board
• PGM/PST switch: "PGM"
• PST bus selection button: "BACKGROUND"
• PST bus BACKGROUND switch: "COL"
• BACKGROUND COLOR LUM control: Fully counterclockwise ↺
• PGM CUT IN/OUT button: OFF
• Adjust the PHASE and GAIN controls of the vectorscope so that the BURST spot is at the 75% position.
[For SEG-2550AP/APM]
Push the NTSC button on vectorscope.</td><td>1. Adjust so that the BACKGROUND spot is at point "A" (buttom right corner of the locus of the bright spot) on the vectorscope screen.
 
</td><td>BACKGROUND COLOR joystick on control panel</td></tr>
<tr><td>2. Adjust so that the BACKGROUND spot touches the outer periphery of the standard frame on the vectorscope screen.
 
</td><td>◐ RV28/SD-17
(If the bright spot is split, adjust L10 on SD-17 to gather it together.)</td></tr>
</table>

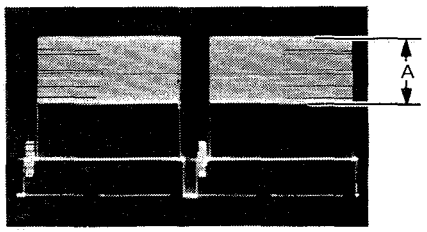
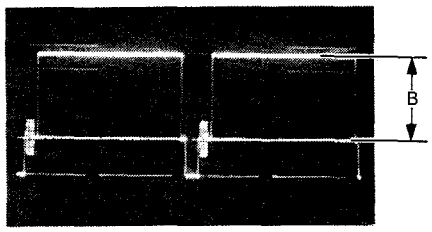
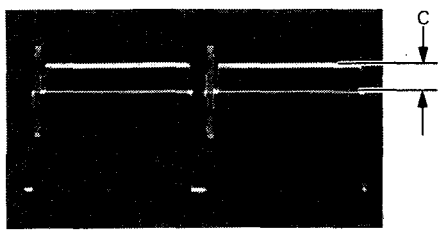
8-5. BACKGROUND WHITE Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "WHT" • PGM CUT IN/OUT button: OFF	PGM OUT 1  [For SEG-2550A] A = 100 $^{+0}_{-2}$ IRE [For SEG-2550AP/APM] A = 700 $^{+0}_{-10}$ mV	◐RV30 BG WHITE /SD-17

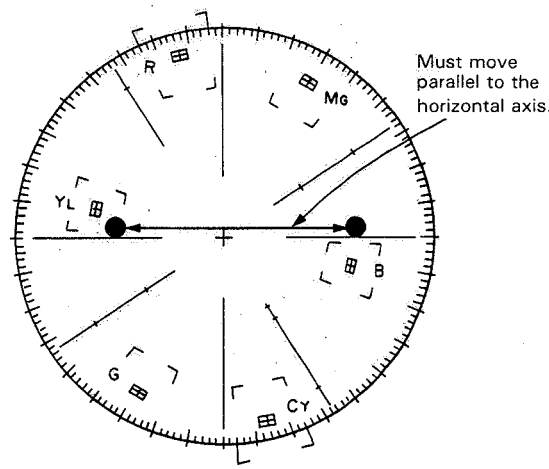
8-6. BACKGROUND BLACK Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PGM/PST switch: "PGM" • PST bus Selection button: "BACKGROUND" • PST bus BACKGROUND switch: "BLK" • PGM CUT IN/OUT button: OFF	PGM OUT 1  [For SEG-2550A] A = 7.5 ± 2 IRE [For SEG-2550AP] A = 5.0 ± 5.0 mV [For SEG-2550APM] A = 50 ± 10 mV	◐RV29 BG BLACK /SD-17

8-7. BACKGROUND COLOR Y Level Adjustment

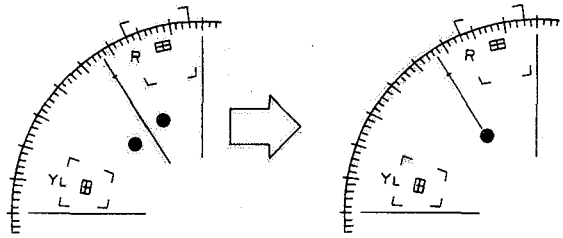
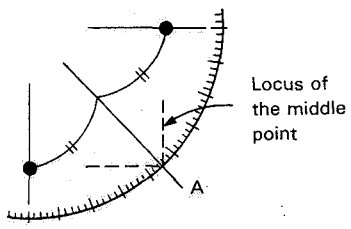
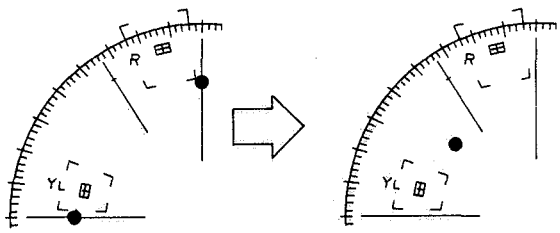
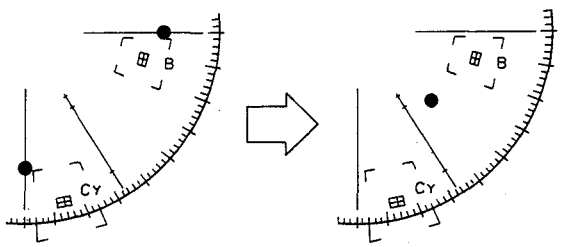
Status at adjustment	Measurement point and specification	Adjustment point
• PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "COL" • BACKGROUND COLOR LUM control: Fully clockwise ↻ • PGM CUT IN/OUT button: "OFF"	1. Adjust so that level "A" is at a minimum.  	BACKGROUND COLOR joystick on control panel
	 [For SEG-2550A] B = 100 $^{+0}_{-2}$ IRE [For SEG-2550AP/APM] B = 700 $^{+0}_{-10}$ mV	◐ RV14 BGY-1 /SY-41
• BACKGROUND COLOR LUM control: Fully counter-clockwise ↺	 [For SEG-2550A] C = 7.5 ± 2 IRE [For SEG-2550AP] C = 54 ± 10 mV [For SEG-2550APM] C = 50 ± 10 mV	◐ RV6 BGY-2 /SY-41

8-8. BORDER CM Phase Adjustment [For SEG-2550A]

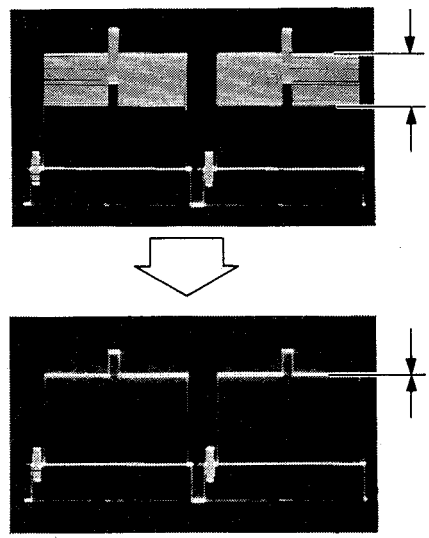
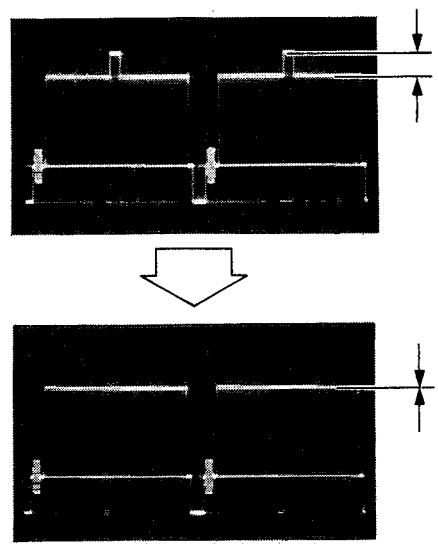
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • EFF lever: Mechanical center • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "COL"	1. Jumper TP56 and TP36 on SD-17.	
	2. Adjust so that the two spots on the vectorscope screen move parallel to the horizontal axis when the BACKGROUND COLOR joystick moves left and right. 	◐L12/SD-17

When this adjustment is compelted, disconnect the jumper between TP56 and TP36 on SD-17.

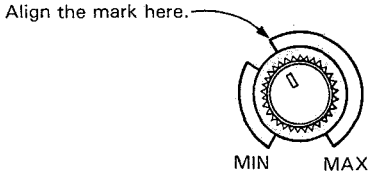
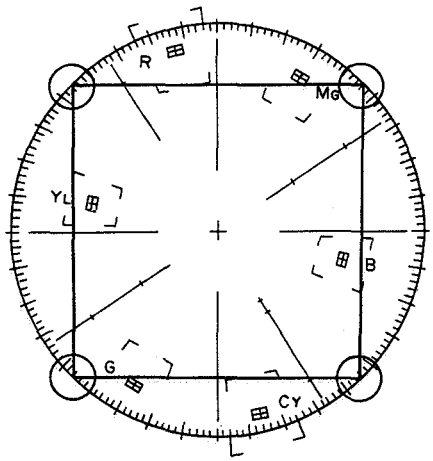
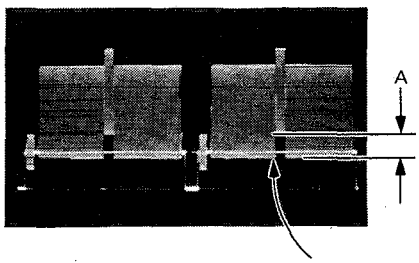
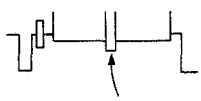
8-9. BORDER CM Phase Adjustment [For SEG-2550AP/APM]

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • EFF lever: Mechanical center • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "WHT" • B bus BACKGROUND switch: "COL" • SOFT/HARD/BDR switch: "BDR" • Push the NTSC button on vectorscope.	1. Adjust so that the BURST spot becomes a dot. 	PHASE control on vectorscope
	2. Adjust so that the middle point of two BACKGROUND spots is at line "A" (bottom right corner of the locus of the middle point) on the vectorscope screen. 	BACKGROUND COLOR joystick on control panel
	3. Adjust so that the BORDER spot becomes a dot. 	◐L12/SD-17
	4. Adjust so that the BACKGROUND spot becomes a dot. 	◐L10, ◐L11/SD-17
	5. Repeat step 2 to 4 several times.	

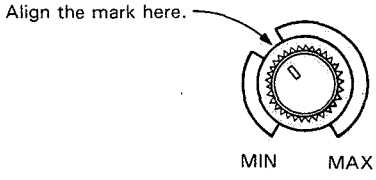
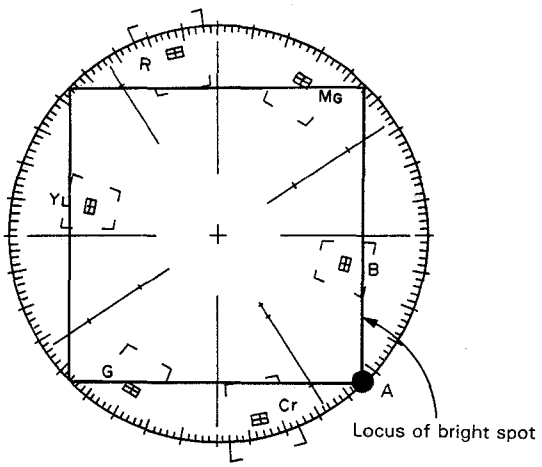
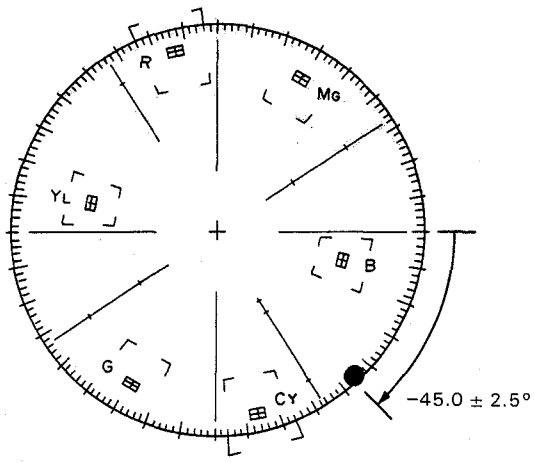
8-10. BORDER CM Y Adjustment

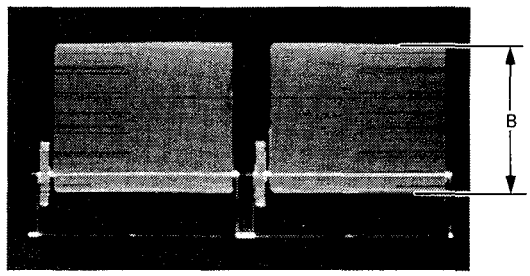
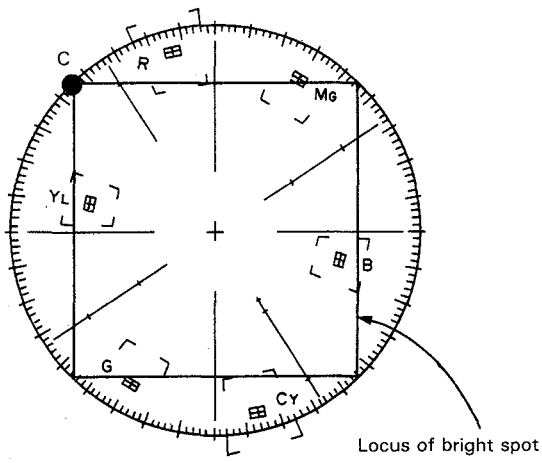
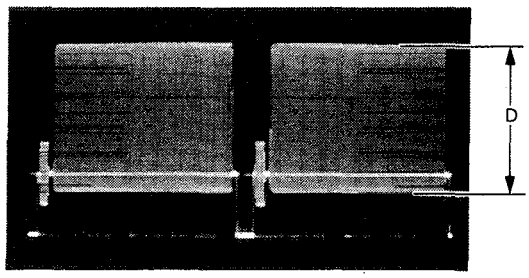
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PST bus selection button: "EFF" • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • EFF lever: Mechanical center • BACKGROUND COLOR LUM control: Fully clockwise ↻ • A bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus selection button: "BACKGROUND" • B bus BACKGROUND switch: "COL" • SOFT/HARD/BDR switch: "BDR"	1. PGM OUT 1 	BACKGROUND COLOR joystick on control panel
	2. PGM OUT 1 	◐RV49/SD-17

8-11. BORDER CM Chroma Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SD-17 board • PST bus selection button: "EFF" • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "COL" • EFF lever: Mechanical center • SOFT/HARD/BDR switch: "HARD" [For SEG-2550AP/APM] Push the NTSC button of vectorscope.	1. Set the BACKGROUND COLOR LUM control on the control panel to the position shown below. 	
	2. Move the BACKGROUND COLOR joystick on the control panel to find the position at which the bright spot is the farthest away from the center on the vectorscope.  (Of the four circled positions, select the position whose distance from the center is the longest.)	
• SOFT/HARD/BDR switch: "BDR"	 [For SEG-2550A] A = 0^{+0}_{-10} IRE [For SEG-2550AP/APM] A = 0^{+0}_{-40} mV  This portion must not protrude.	◐CV2/SD-17

8-12. BACKGROUND COLOR HUE Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• The boards must not be extended. • PGM/PST switch: "PGM" • PST bus selection button: "BACKGROUND" • PST bus BACKGROUND switch: "COL" • PGM/PST lever: Lowermost positioin • Adjust the PHASE and GAIN controls on the vectorscope so that the BURST spot is at the 75% position. • PGM CUT IN/OUT button: OFF [For SEG-2550AP/APM] Push the NTSC button on vectorscope.	1. Set the BACKGROUND COLOR LUM control on the control panel to the position shown below.  	
	2. Adjust so that the BACKGROUND spot is at point "A" (bottom right corner of the locus of the bright spot) on the vectorscope screen.  	BACKGROUND COLOR joystick on control panel
	3. Adjust so that the BACKGROUND spot touches the outer periphery of the standard of the vectorscope screen, and its angle from the vertical axis is −45±2.5°.  	◐L10/SD-17 (If the specificatioin is not met adjust L11 on SD-17 as well). Note: Adjust from the solder side of the SD-17 board.

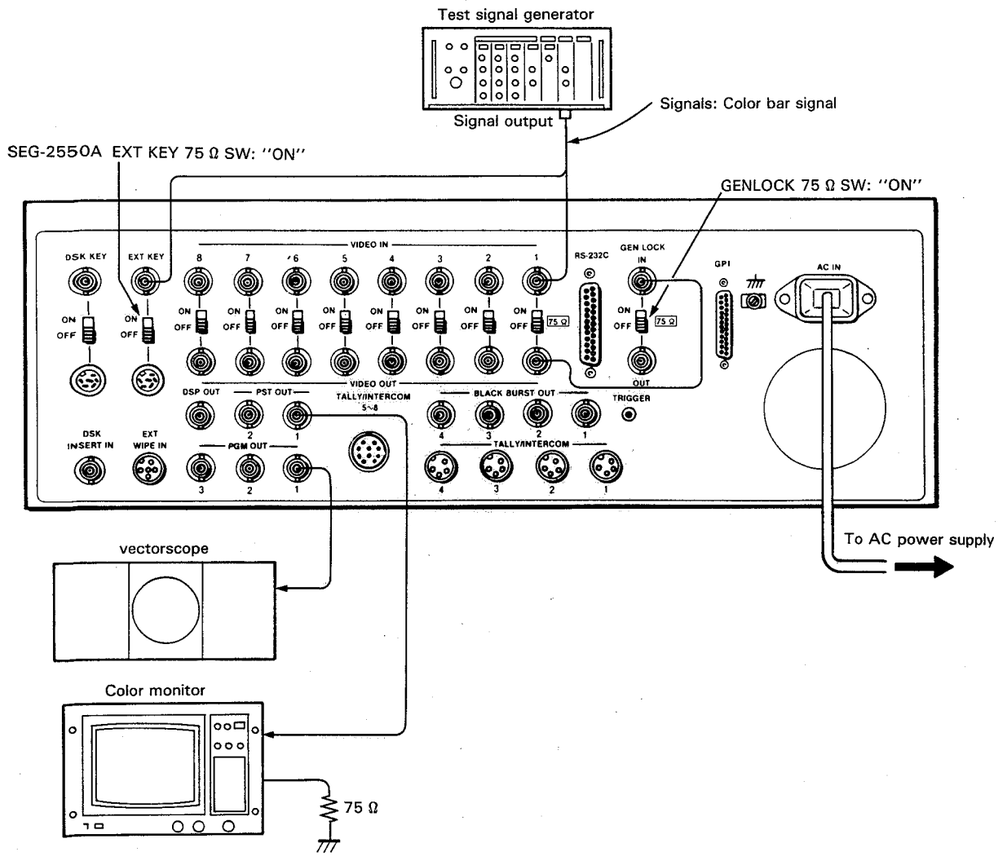
Status at adjustment	Measurement point and specification	Adjustment point
	PGM OUT 1  [For SEG-2550A] B ≒ 99 ± 1 IRE [For SEG-2550AP/APM] B = 690 ± 10 mV	◐ RV13 BGC-1 /SY-41
	5. Ajust so that the BACKGROUND spot is at point "C" (upper left corner of the locus of the bright spot) on the vectorscope screen.  	BACKGROUND COLOR joystick on control panel
	PGM OUT 1  [For SEG-2550A] B ≒ 99 ± 1 IRE [For SEG-2550AP/APM] B = 690 ± 10 mV	◐ RV5 BGC-2 /SY-41

SECTION 9
WIPE SYSTEM ADJUSTMENT

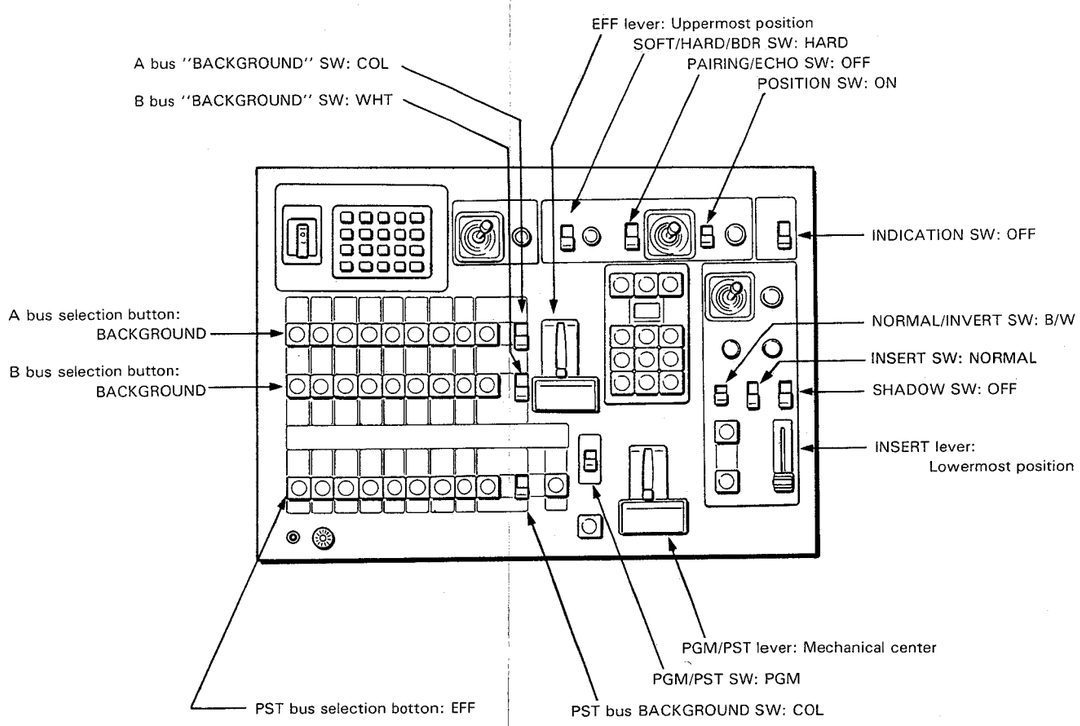
[Instruments]
- Oscilloscope
- Vectorscope
- Color monitor
- Test signal generator (signals: Color bar signal)

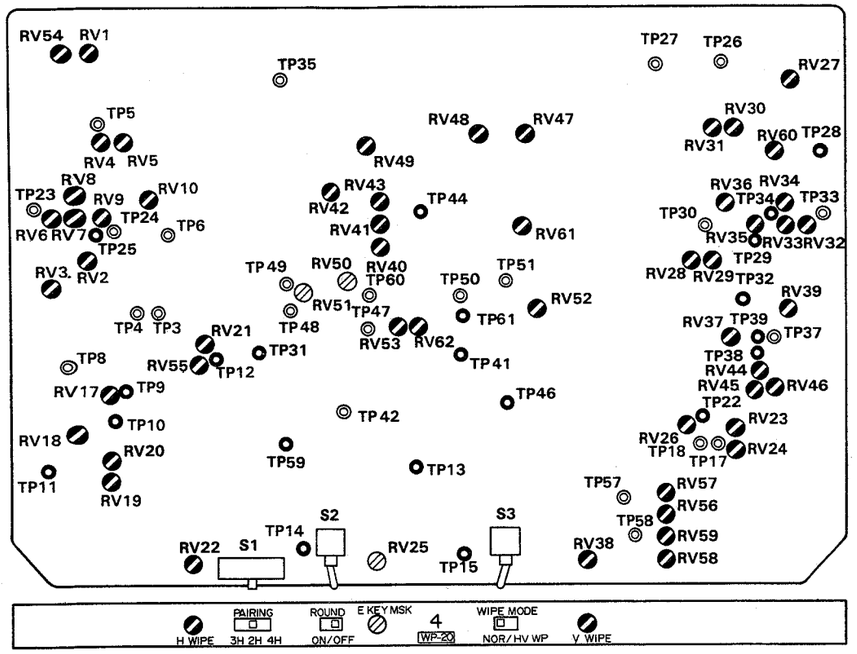
[Jigs]
- Extension board EX-82/83 (SONY part number J-6028-910-A)

[Connection Diagram]



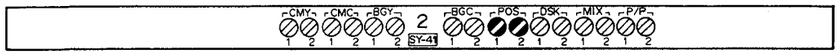
[Switch settings before adjustment]



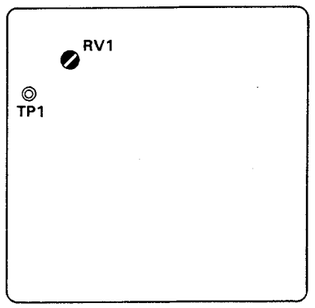


WP-20 Board (Component Side)

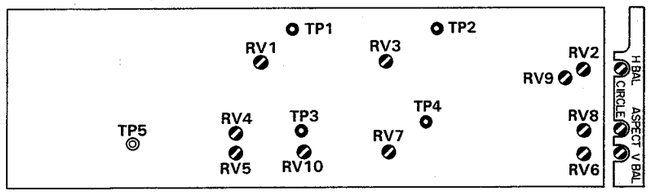
※GND:TP41



SY-41 Board (Component Side)



SY-52 Board (Component SIde)

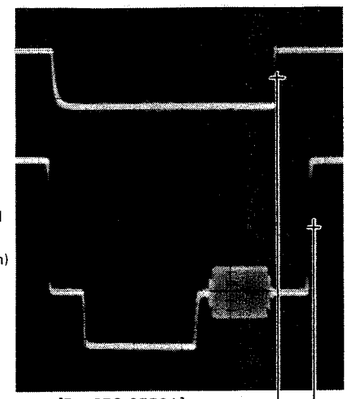


WP-21 Board (Component Side)

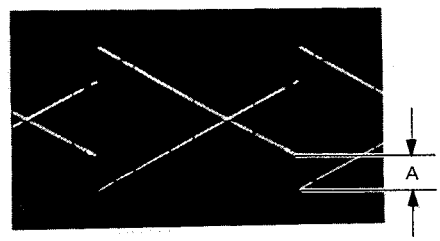
9-1. Fader DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • EFF lever: Uppermost position • MIX button/EFFECT SELECT: ON	1. TP15 (GND:TP41)/WP-20, +0.5±0.05V dc	◐ RV57/WP-20
• PAIRING/ECHO switch: "PAIRING" • WIPE SHIFT button: ON • Wipe pattern selection button: ◆	2. TP15 (GND:TP41)/WP-20, −0.5±0.05V dc	◐ RV59/WP-20
• EFF lever: Lowermost position	3. TP15 (GND:TP41)/WP-20, −3.5±0.05V dc	◐ RV56/WP-20
• PAIRING/ECHO switch: "OFF" • Wipe pattern selection button: ◪	4. TP15 (GND:TP41)/WP-20, −2.5±0.05V dc	◐ RV58/WP-20

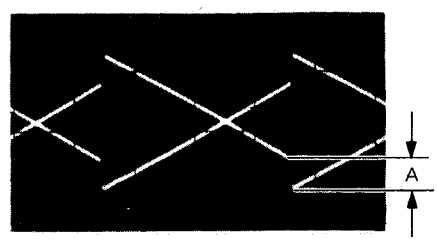
9-2. WIPE BLKG Width Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • EFF lever: Lowermost position • PGM/PST Lever: Mechanical center • WIPE SHIFT button: ON • Wipe pattern selection button: ◨	TP50 on extension board PST OUT 1 (75 Ω termination)  [For SEG-2550A] W = 1.5 ± 0.1 μS [For SEG-2550AP/APM] W = 2.0 ± 0.1 μS	◐ RV54/WP-20 TRIG: Pin 15 on extension board

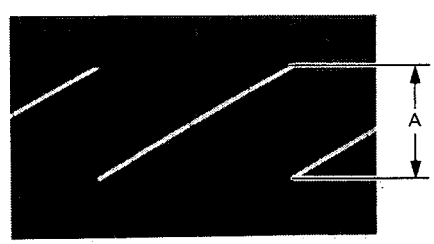
9-3. V Sawtooth Wave DC Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • WIPE SHIFT button: ON • Wipe pattern selection button: ▄ • PAIRING/ECHO SW: "PAIRING"	TP32/ WP-20  A = 0 ± 0.05 V	◐ RV33/WP-20 TRIG: Pin 78 on extension board

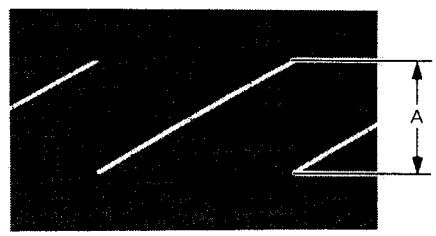
9-4. H Sawtooth Wave DC Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • WIPE SHIFT button: ON • Wipe pattern selection button: ▄ • PAIRING/ECHO SW: "PAIRING"	TP12/ WP-20  A = 0 ± 0.05 V	◐ RV7/WP-20 TRIG: Pin 15 on extensioin board

9-5. V WIPE Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PAIRING/ECHO SW: "OFF"	TP32/WP-20  A = 2.0 ± 0.1 V	◐ RV39/WP-20 TRIG: Pin 78 on extension board

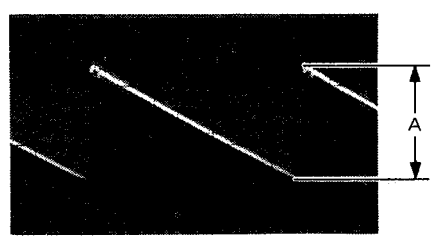
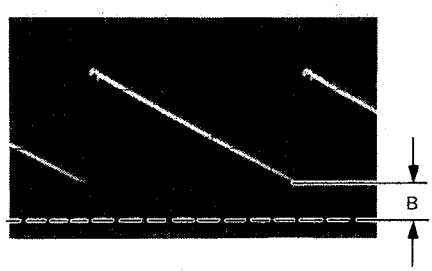
9-6. H WIPE Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PAIRING/ECHO SW: "OFF"	TP9/WP-20  A = 2.0 ± 0.1 V	◐ RV17/WP-20 TRIG: Pin 15 on extension board

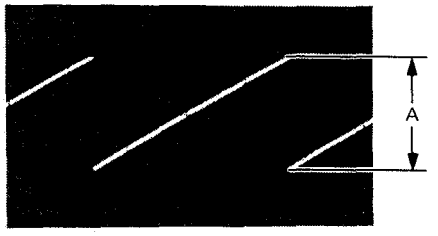
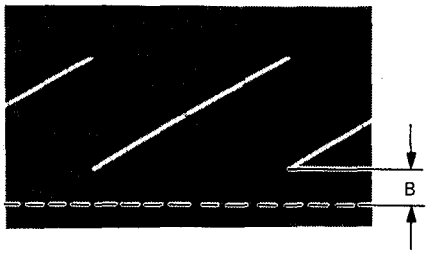
9-7. H/V WIPE Shift Set

Status at adjustment	Measurement point and specification	Adjustment point
	◐ RV22 [H WIPE] /WP-20: Mechanical center ◐ RV38 [V WIPE] /WP-20: Mechanical center	

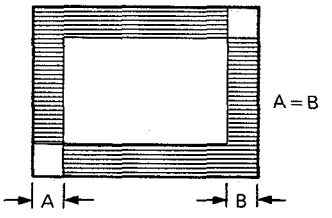
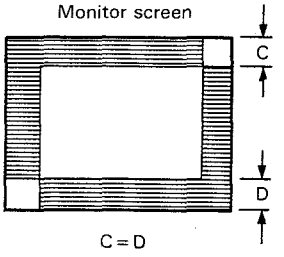
9-8. H Fader Input Waveform Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PAIRING/ECHO SW: "OFF"	TP12/ WP-20  A = 2.0 ± 0.1 V	◐ RV9/WP-20 TRIG: Pin 15 on extension board
	TP12/ WP-20 GND  B = 0.5 ± 0.1 V dc	◐ RV21/WP-20 TRIG: Pin 15 on extension board

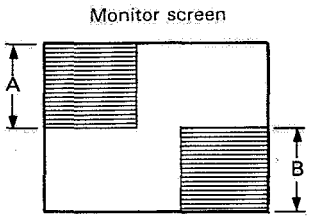
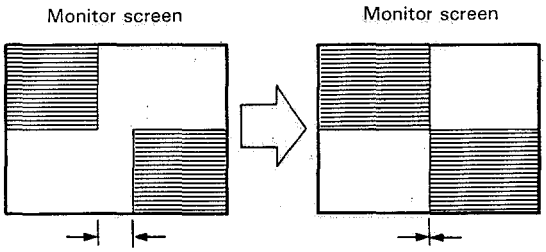
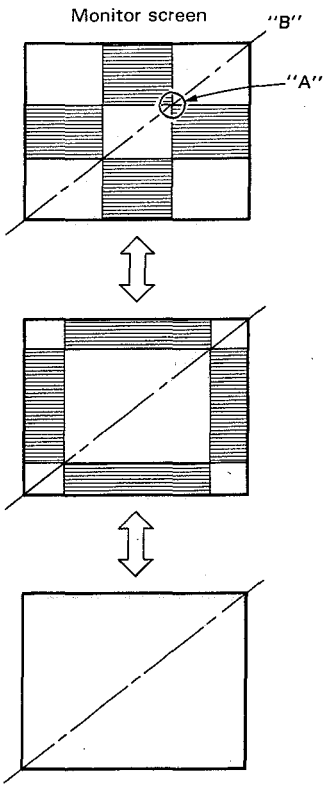
9-9. V Fader Input Waveform Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PAIRING/ECHO SW: "OFF"	1. TP31 WP-20  A = 2.0 ± 0.1 V	◐ RV34/WP-20 TRIG: Pin 78 on extension board
	2. TP31 WP-20 GND  B = 0.5 ± 0.1 V dc	◐ RV37/WP-20 TRIG: Pin 78 on extension board

9-10. Centering Adjustment

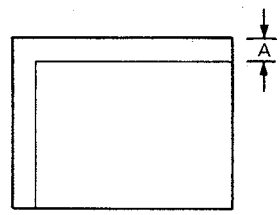
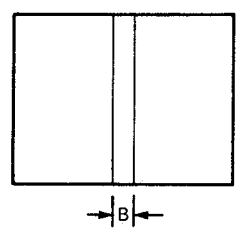
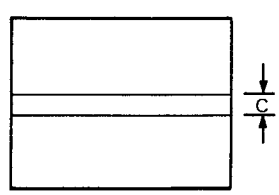
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ▀ • PAIRING/ECHO switch: "PAIRING" • SOFT/HARD/BDR switch: "HARD"	1. Adjust the EFF lever until the specification is met. Monitor screen  	◐ RV1/WP-20
	2. Adjust the EFF lever until the specification is met. Monitor screen  C = D	◐ RV27/WP-20

9-11. Corner Wipe Gain Adjustment

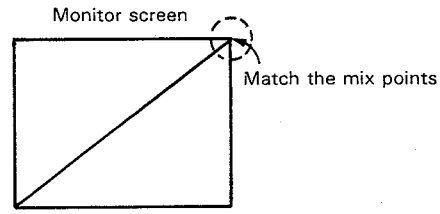
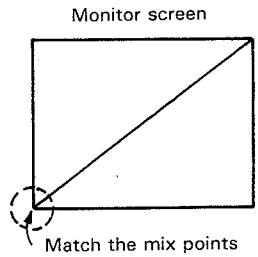
Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • PAIRING/ECHO switch: "PAIRING" • SOFT/HARD/BDR switch: "HARD"	1. Adjust so that A = B.  A = B	EFF lever on control panel
	2.  	◐ RV21/WP-20
	3. Move the EFF lever/control panel and adjust so that "A" moves along the line "B".  	◐ RV34/WP-20

Note: When this adjustment is completed, move the PAIRING/ECHO switch to OFF.

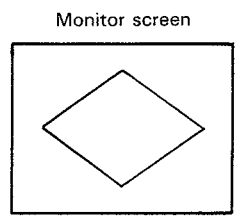
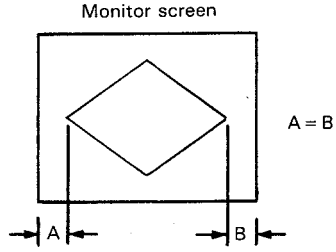
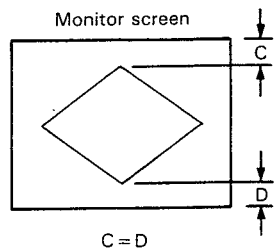
9-12. H/V Triangle Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ◪ • PAIRING/ECHO switch: "OFF" • SOFT/HARD/BDR switch: "HARD"	1. Adjust so that A = 20 mm. 	EFF lever on control panel
Wipe pattern selection: Wipe No. 030	2.  B = A	◐ RV6/WP-20
Wipe pattern selection: Wipe No. 060	3.  C = A	◐ RV32/WP-20

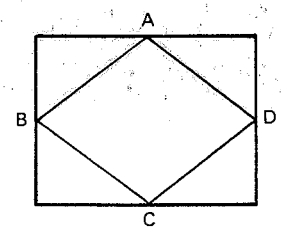
9-13. H/V Mix Ratio Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection: WIPE No. 140	1.  	EFF lever on control panel
	2.  	◐ RV55/WP-20
	3. Repeat steps 1 and 2 several times.	

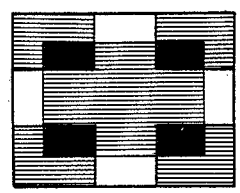
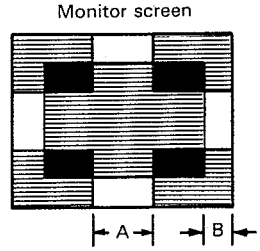
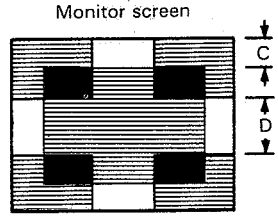
9-14. POSITION Center Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ◆ • POSITION switch: "OFF" • PAIRING/ECHO switch: "OFF" • SOFT/HARD/BDR switch: "HARD"	1. Display the following on the screen:  	EFF lever on control panel
	2.  	◐ RV40/WP-20
	3.  	◐ RV41/WP-20

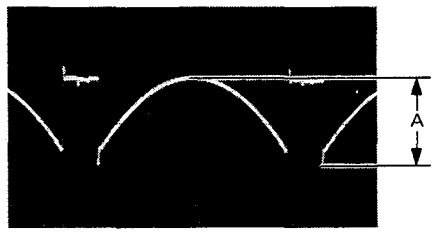
9-15. Diamond Ratio Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ◆ • POSITION switch: "OFF" • PAIRING/ECHO switch: "OFF" • SOFT/HARD/BDR switch: "HARD"	Adjust the EFF lever on the control panel so that the four points, A, B, C, and D, touch the edges of the screen simultaneously. Monitor screen 	◐ RV32/WP-20

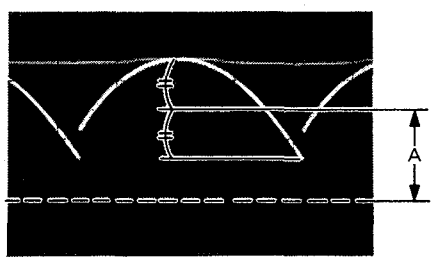
9-16. Triangle DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • POSITION switch: "OFF" • SOFT/HARD/BDR switch: "HARD" • PAIRING/ECHO SW: "PAIRING"	1. Display the following on the screen: Monitor screen 	EFF lever on control panel
	2. Monitor screen  B = 0.5 x A	◐ RV3/WP-20
	3. Monitor screen  C = 0.5 X D	◐ RV29/WP-20

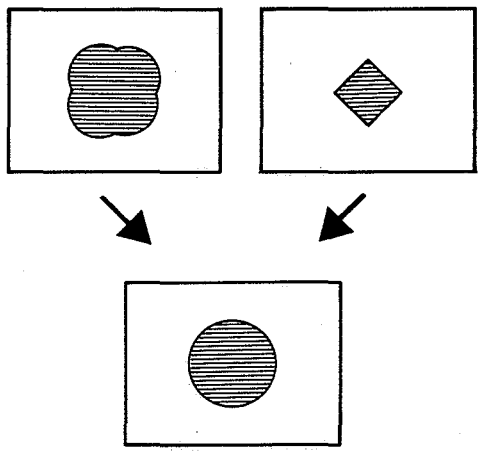
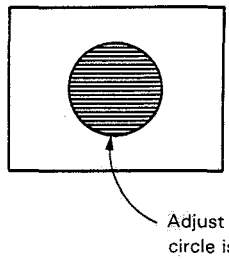
9-17. Circle Wipe Adjustment 1

<table>
<tr><th>Status at adjustment</th><th>Measurement point and specification</th><th>Adjustment point</th></tr>
<tr><td rowspan="2">• Board extension: WP-20 board
• PGM/PST switch: "PGM"
• PST bus selection button: "EFF"
• A bus selection button: "BACKGROUND"
• B bus selection button: "BACKGROUND"
• A bus BACKGROUND switch: "COL"
• B bus BACKGROUND switch: "WHT"
• PGM/PST lever: Lowermost position
• WIPE SHIFT button: ON
• Wipe pattern selection button: ●
• PAIRING/ECHO switch: "OFF"</td><td>1.
 

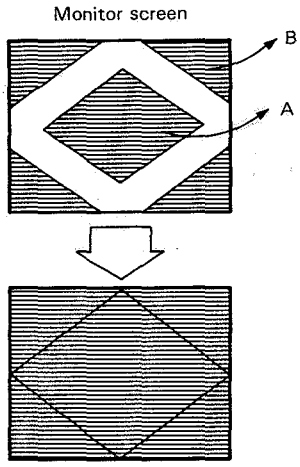
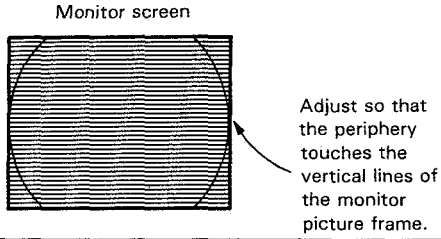
A = 1.5 ± 0.02 V</td><td>◐RV8/WP-20

TRIG: Pin 15 on extension board</td></tr>
<tr><td>2.
 

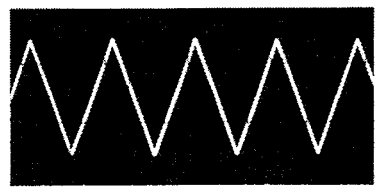
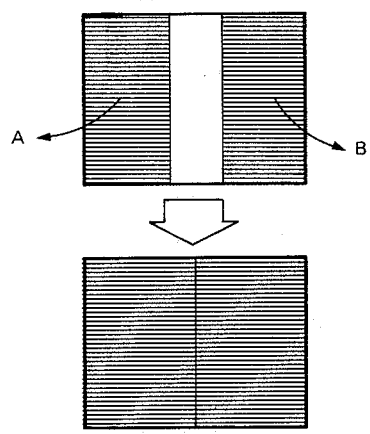
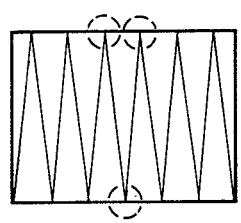
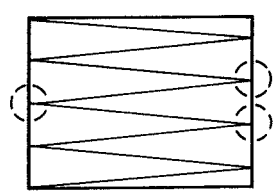
A = 0 ± 0.05 V dc</td><td>◐RV36/WP-20

TRIG: Pin 78 on extension board</td></tr>
<tr><td rowspan="2">• PAIRING/ECHO SW: "PAIRING"</td><td>3.
 
</td><td>◐RV2/WP-20
◐RV28/WP-20</td></tr>
<tr><td>4.
 
</td><td>◐RV35/WP-20</td></tr>
</table>

9-18. Circle DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wiipe pattern selection button: ◆ • PAIRING/ECHO switch: "PAIRING" • POSITION switch: "OFF" • SOFT/HARD/BDR: "HARD"	1. Align boundary lines A and B on the monitor screen. 	EFF lever on control panel
• Wipe pattern selection button: ●	2. Adjust so that the periphery of the circle wipe touches the vertical lines of the monitor picture frame. 	◐RV10/WP-20

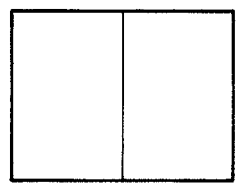
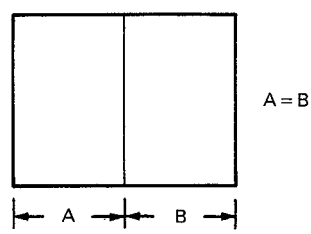
9-19. H/V Harmonic DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board	1. Turn ◐ RV60 on WP-20 slowly clockwise and counterclockwise to determine the range in which the waveform at TP28 on the WP-20 is locked. Set ◐ RV60 on WP-20 to the center position of that ranage. TP28/WP-20 	◐ RV60/WP-20 TRIG: Pin 78 on extension board
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • PAIRING/ECHO switch: "PAIRING" • SOFT/HARD/BDR: "HARD"	2. Align boundary lines A and B on the monitor screen. Monitor screen 	EFF lever on control panel
• Wipe pattern selection: WIPE No. 105 • PAIRING/ECHO switch: "OFF"	3. Adjust so that the portions indicated by ◌ in the figure below touch the monitor picture frame. 	◐ RV4/WP-20 ◐ RV5/WP-20
• Wipe pattern selection: WIPE No. 115	4. Adjust so that the portions indicated by ◌ in the figure below touch the monitor picture frame. 	◐ RV30/WP-20 ◐ RV31/WP-20

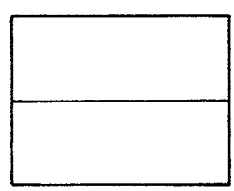
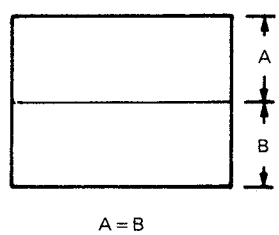
9-20. Wipe Gain Control DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • Wipe pattern selection: WIPE No. 200	1. Move the EFF lever on the control panel up and down, and adjust it so that the variation range of the DC voltage at TP22 (GND:TP13) on the WP-20 board is $A = 0.4^{+0.05}_{-0}$ Vp-p. EFF lever: Uppermost position A EFF lever: Lowermost position	◐ RV26/WP-20
• EFF lever: Lowermost position	2. TP22/WP-20 B TP39/WP-20 B = 200 ± 60 mV dc	◐ RV45/WP-20
• EFF lever: Uppermost position	3. TP38/WP-20 C TP22/WP-20 C = 200 ± 60 mV dc	◐ RV46/WP-20
• Wipe pattern selection: WIPE No. 246	4. TP59/WP-20 D TP11/WP-20 D = 200 ± 60 mV dc	◐ RV19/WP-20
• EFF lever: Lowermost position	5. TP10/WP-20 E TP59/WP-20 E = 200 ± 60 mV dc	◐ RV20/WP-20

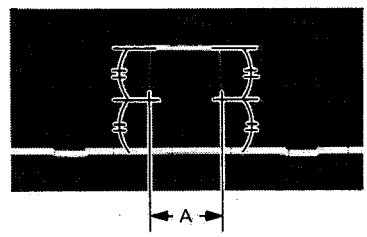
9-21. H Wipe Gain Control Bias Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection: WIPE No. 200	1. Move the EFF lever on the control panel to display the following on the screen: Monitor screen 	
	2. Monitor screen 	◐RV44/WP-20
	3. Repeat steps 1 and 2 several times.	

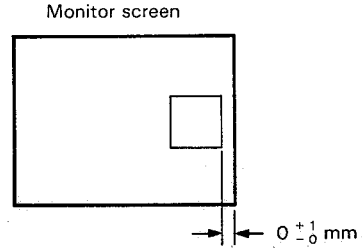
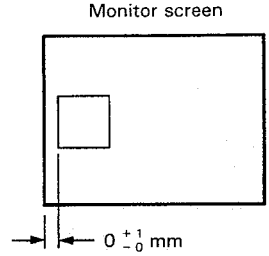
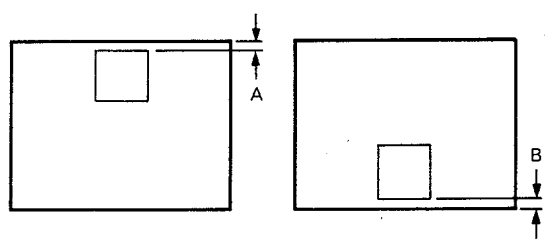
9-22. V Wipe Gain Control Bias Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection: WIPE No. 246	1. Move the EFF lever on the control panel to display the following on the screen: Monitor screen 	
	2. Monitor screen  A=B	◐RV18/WP-20
	3. Repeat steps 1 and 2 several times	

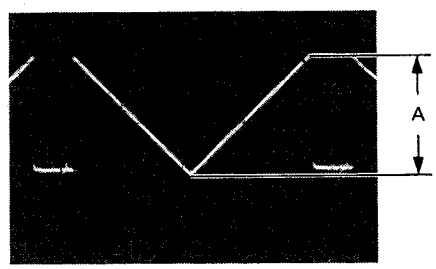
9-23. Fader Position Setting

Status at adjustment	Measurement point and specification	Adjustment point
• PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "WHT" • B bus BACKGROUND switch: "COL" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: [■]	TP44/ WP-20  A = 20 ± 0.2 μS	EFF lever on control panel TRIG: Pin 15 on extension board

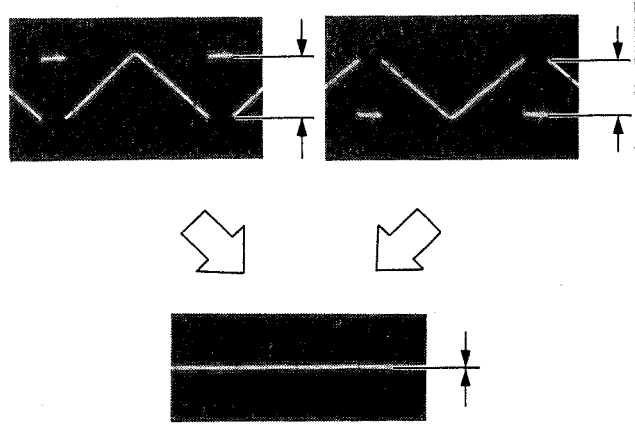
9-24. POSITION CONT Voltage Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board	1. Set ◐ RV42 on WP-20 to the mechanical center.	
• POSITION switch: ON • POSITION joystick: Right end	2. Monitor screen  	◐ RV4 [POS-2] /SY-41
• POSITION joystick: Left end	3. Monitor screen  	◐ RV12 [POS-1] /SY-41
	4. POSITION joystick: Top end POSITION joystick: Bottom end  A = B	◐ RV43/WP-20

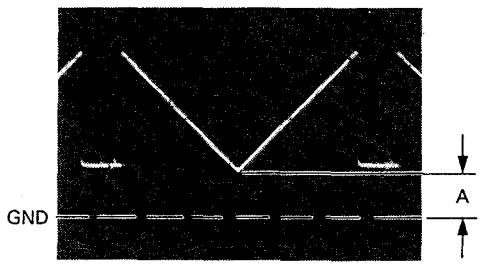
9-25. FADER AMP Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. Move the EFF lever on the control panel until the voltage on the TP15/WP-20 board reaches +2.5 ±0.05 V dc, then fix the EFF lever at that position.	
	2. TP1/WP-21  A = 1.0 ± 0.02 V	◐ RV9/WP-21

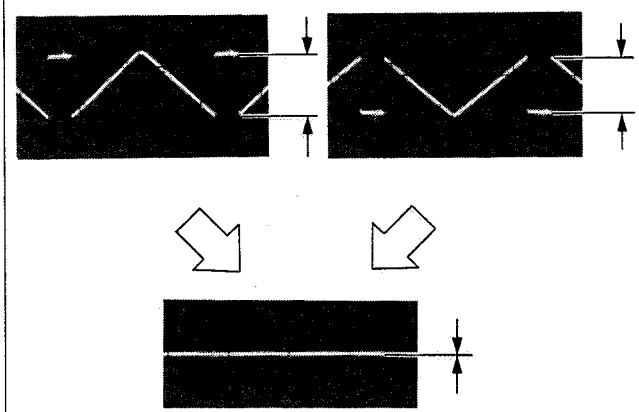
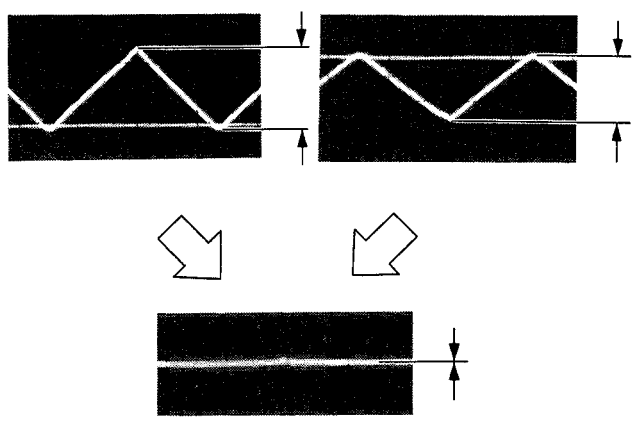
9-26. H Triangle DC Ajustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. TP1/WP-21 	EFF Lever/Control Panel
	2. Adjust the voltage of TP1/WP-21 to 0 ± 0.02 V dc.	◐ RV2/WP-21

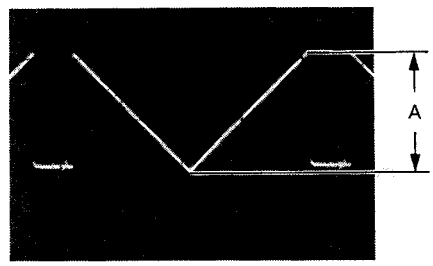
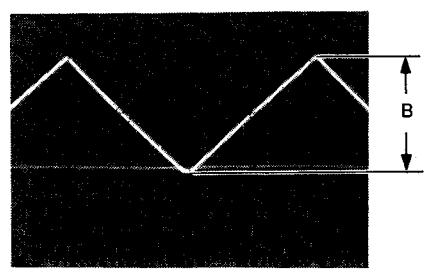
9-27. H Triangle DC Variation Volume Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. EFF lever/control panel → "uppermost position"	
	2. TP1/WP-21  A = 0.25 ± 0.02 V	◐ RV1/WP-21

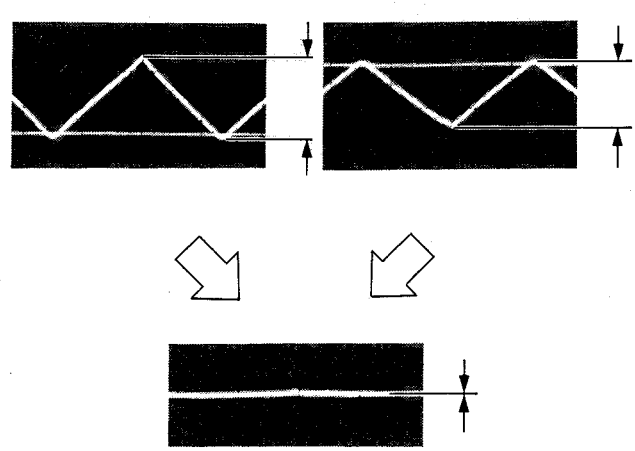
9-28. V SIDE CORRECTION Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. TP1/WP-21 	EFF lever/control panel
	2. TP3/WP-21 	◐RV4/WP-21

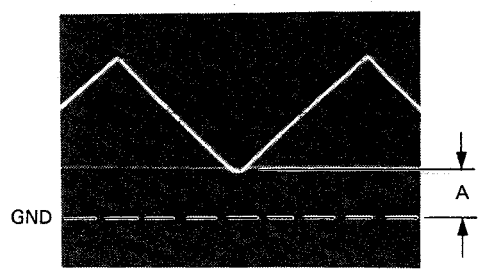
9-29. V Triangle Gain Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: [●] • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. TP1/WP-21  A = 1.0 ± 0.02 V	EFF lever/control panel
	2. TP3/WP-21  B = 1.0 ± 0.02 V	◐ RV10/WP-21

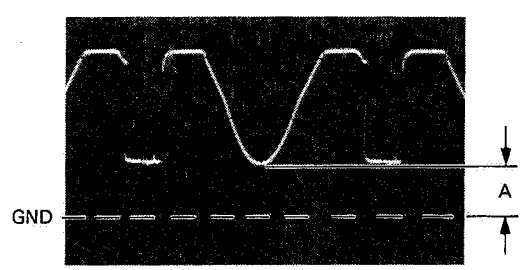
9-30. V Triangle DC Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: [●] • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. TP3/WP-21 	EFF lever/control panel
	2. Adjust the voltage of TP3/WP-21 to 0 ± 0.02 V dc.	◐ RV6/WP-21

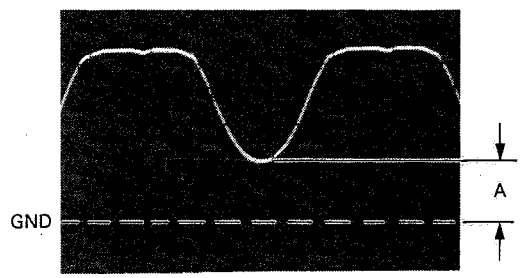
9-31. V Triangle DC Variation Volume Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. EFF Lever/Control Panel → "Uppermost position"	
	2. TP3/WP-21  A = 0.25 ± 0.02 V	◐ RV5/WP-21

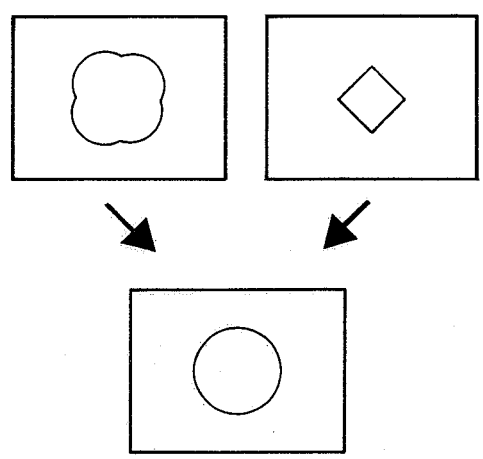
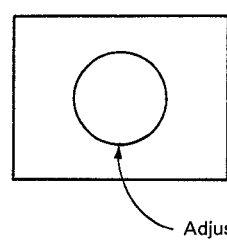
9-32. Temporaty H Parabola Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. EFF Lever/Control Panel → "Uppermost position"	
	2. TP2/WP-21  A = 1.0 ± 0.1 V dc	◐ RV3/WP-21

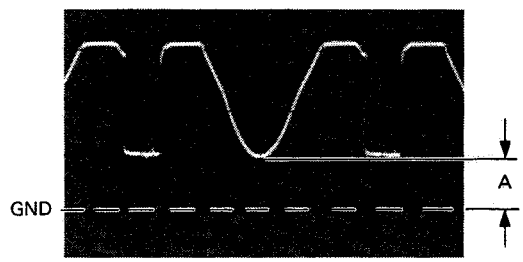
9-33. Temporary V Parabola Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. EFF Lever/Control Panel → "Uppermost position"	
	2. TP4/WP-21  A = 1.0 ± 0.1 V	◐ RV7/WP-21

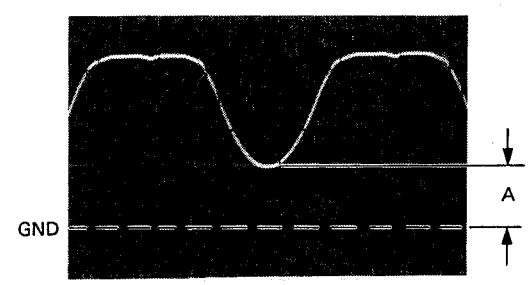
9-34. Circle Wipe Adjustment 2

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: ● • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. monitor screen 	◐ RV2/WP-21 ◐ RV6/WP-21
	2. monitor screen  	◐ RV8/WP-21
	3. Repeat step 1 & 2 several times.	

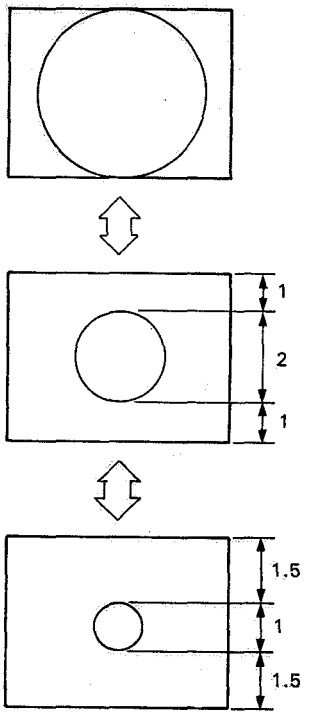
9-35. V Parabola Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: [●] • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. EFF Lever/Control Panel → "Uppermost position"	
	2. TP2/WP-21  A = 1.0 ± 0.1 V dc	◐ RV3/WP-21

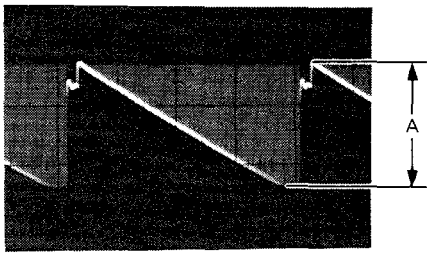
9-36. H Parabola Level Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: [●] • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. EFF Lever/Control Panel → "Uppermost position"	
	2. TP4/WP-21  A = 1.0 ± 0.1 V	◐ RV7/WP-21

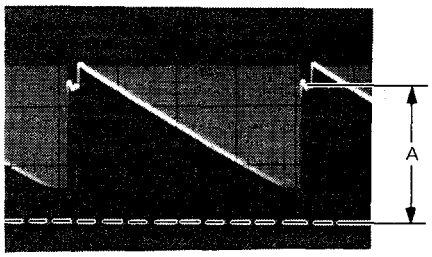
9-37. Circle Wipe Adjustment 3

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • PGM/PST lever: Lowermost position • WIPE SHIFT button: ON • Wipe pattern selection button: [●] • PAIRING/ECHO switch: "OFF" • POSITION SW: "OFF" • SOFT/HARD/BDR: "HARD"	1. Move the EFF lever/Control Panel according to the size and adjust it to form a perfect circle. monitor screen  	◐ RV2/WP-21 ◐ RV6/WP-21 ◐ RV8/WP-21

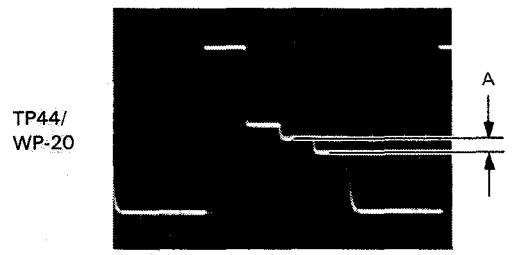
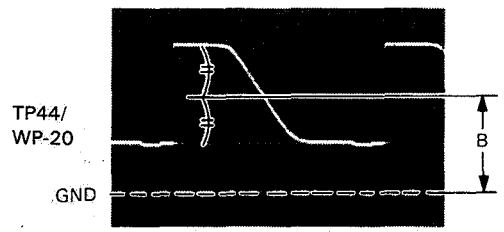
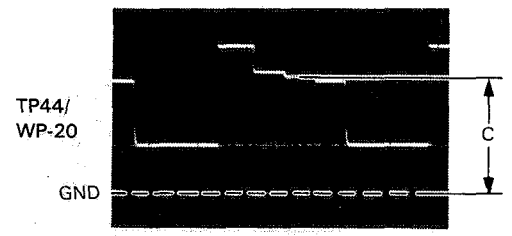
9-38. ECHO WIPE LEVEL Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • WIPE SHIFT button: ON • Wipe pattern selection button:	TP61/WP-20  A = 1.2 ± 0.04 V	RV47/WP-20 TRIG: Pin 15 on extension board

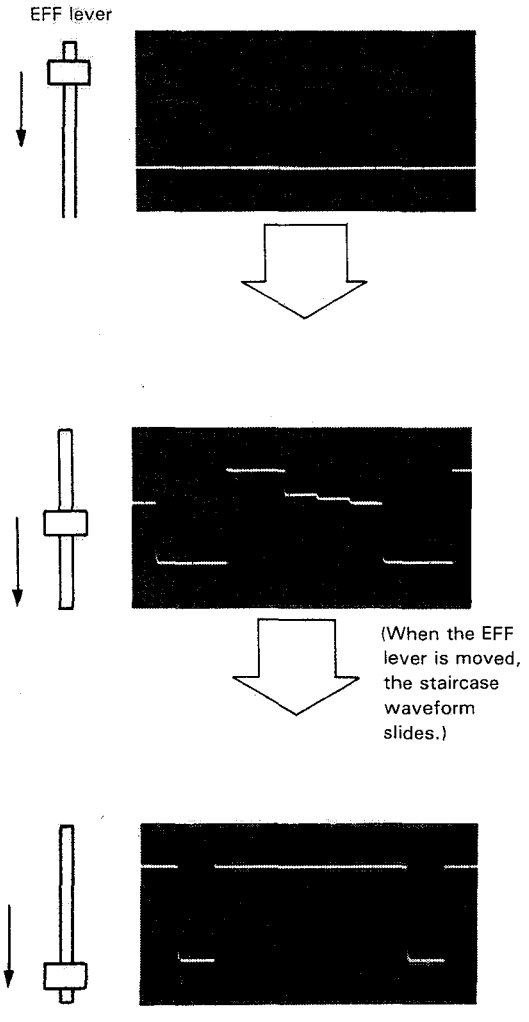
9-39. ECHO WIPE CLAMP Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • WIPE SHIFT button: ON • Wipe pattern selection button:	TP61/WP-20 GND  A = 1.7 ±0.05 V dc	RV48/WP-20 TRIG: Pin 15 on extension board

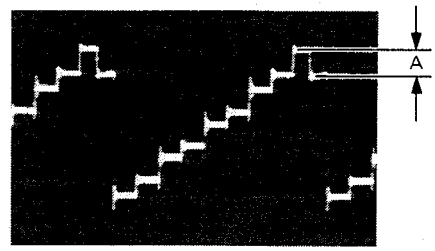
9-40. ECHO WIPE KEY Output Voltage Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "BACKGROUND" • B bus BACKGROUND switch: "COL" • WIPE SHIFT button: ON • Wipe pattern selection button: ■ • SOFT/HARD/BDR switch: "SOFT" • SOFTNESS/BORDER control: Fully clockwise ↻ • EFF lever: Mechanical center	1. Move the PAIRING/ECHO switch to ECHO.  A = 80 ± 10 mV	◐ RV62/WP-20 TRIG: Pin 15 of extension board
	2. Turn the PAIRING/ECHO switch OFF.  • Measure level B.	TRIG: Pin 15 of extension board
	3. Move the PAIRING/ECHO switch on the control panel to ECHO.  C = B	◐ RV53/WP-20 TRIG: Pin 15 of extension board
	4. Repeat steps 1 to 3 several times.	

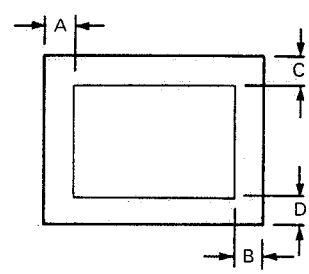
9-41. ECHO WIPE FADER Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "BACKGROUND" • B bus BACKGROUND switch: "COL" • WIPE SHIFT button: ON • Wipe pattern selection button: ■□ • SOFT/HARD/BDR: "SOFT" • SOFTNESS/BORDER control: Fully clockwise ↻. • Pairing/ECHO switch: "ECHO"	Adjust so that the waveform at TP44 on WP-20 changes from ① to ③ in the figures below as the EFF lever is moved from top to bottom.  	◐RV52/WP-20 TRIG: Pin 15 on extension board

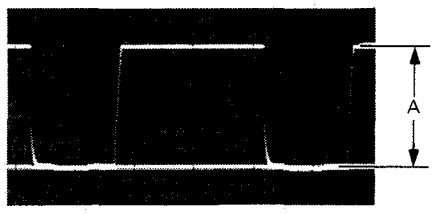
9-42. EXT KEY LEVEL Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • Input the color bar signal to the EXT KEY terminal on the rear panel. • EFFECT SELECT EXT KEY button: ON	TP46/WP-20  A = 0.6 ± 0.05 V	◐ RV49/WP-20 TRIG: Pin 15 on extension board

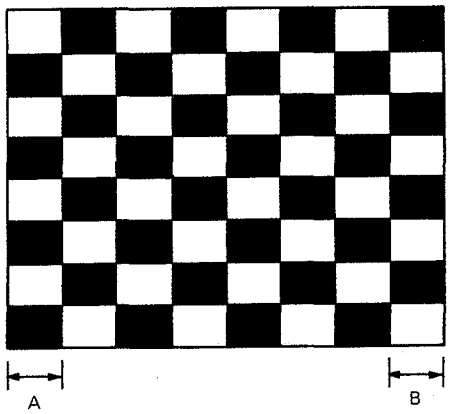
9-43. EXT KEY MASK Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • Connect the output of the B/W camera to the EXT KEY terminal (DIN 6-pin) on the rear panel. • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "1" • B bus selection button: "BACKGROUND" • B bus BACKGROUND switch: "COL" • PGM/PST lever: Lowermost position • EXT KEY Button: ON • EXT KEY LEVEL control: Fully copunterclockwise ↺	1. Turn ◐ RV25 [E KEY MASK] on WP-20 fully counterclockwise ↺.	
	2. Adjust so that A = B and C = D. Monitor screen 	◐ RV23, ◐ RV24/WP-20

9-44. EXT WIPE LEVEL Adjustment (only when connected to WEX-2000/P/PM)

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: WP-20 board • Connect the output of the wipe pattern extender WEX-2000/P/PM to the EXT WIPE IN terminal on the rear panel. • WIPE SHIFT button: "ON" • Turn the EXTENDER IN/OUT switch of the WEX-2000/P/PM "ON". • Display the wipe waveform on the monitor screen.	TP44/WP-20  A = 1.6 ± 0.2 V	◐RV61/WP-20 TRIG: Pin 15 on extension board

9-45. MOSAIC WIPE Adjustment

Status at adjustment	Measurement point and specification	Adjustment point
• Board extension: SY-41 board • PGM/PST switch: "PGM" • PST bus selection button: "EFF" • A bus selection button: "BACKGROUND" • B bus selection button: "BACKGROUND" • A bus BACKGROUND switch: "COL" • B bus BACKGROUND switch: "WHT" • WIPE SHIFT Button: ON • Wipe pattern selection: WIPE No. 307 • EFF lever: Mechanical center	Monitor screen  A = B	◐RV1: SY-52